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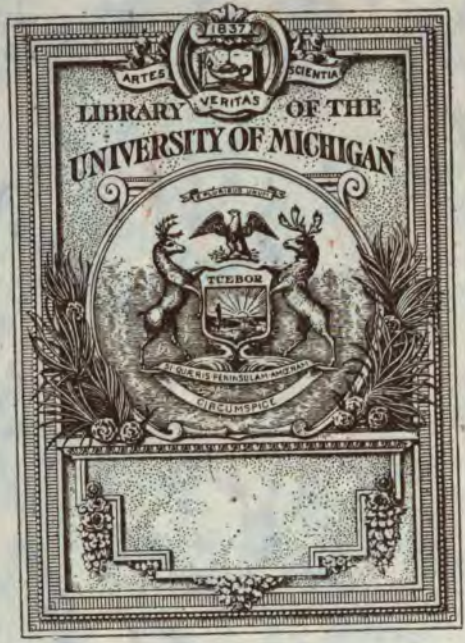


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# TRANSACTIONS

OF THE

# ABERDEEN PHILOSOPHICAL SOCIETY

VOL. III.

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The Rosemount Press,
Aberdeen.

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# TRANSACTIONS

OF THE

# ABERDEEN PHILOSOPHICAL SOCIETY

VOL. III.

INCLUDING RESUMÉ OF THE WORK OF THE SOCIETY FROM 1890 TO 1900.

ABERDEEN:

PRINTED FOR THE SOCIETY.

1900.

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## NOTE.

The Papers in this Volume have been revised by their respective authors.

The Volume has been compiled and edited by the Secretary.

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# PREFACE.

THE Aberdeen Philosophical Society (the third of the name) has now completed its sixty-first session. The Third Volume of Transactions issued herewith covers the period comprised by the last decade of the century—1890 to 1900. It has not been thought necessary to reprint Mr. A. D. Milne's paper "on the History and Public Work of the Society," which served as an Introduction to Vols. I. and II, but in place thereof there will be found a very interesting paper written by Mr. James Valentine for "Macmillan's Magazine" of October, 1863, which is here reproduced with the kind consent of Messrs. Macmillan & Co. It contains a graphic and instructive account of the doings of the *first* Aberdeen Philosophical Society—a Society of very distinguished men, who left their mark on the philosophy of their own and succeeding generations.

The volume further contains—

1. A List of the Titles of all the Papers read since November, 1889, with the names of the members who communicated them.
2. A Tabulated List of the Excursions made by the Society.
3. The Names and the Designations at the period of their election, of all the members—ordinary, honorary, or corresponding—elected since November, 1889.
4. A full Report of a Selection of Papers read since the commencement of the year 1890.
5. The Constitution and Rules of the Society.
6. The present Office-bearers and Members—Honorary and Ordinary—with the dates of their election.

W. KENDALL BURNETT,
*Secretary.*

11 BELMONT STREET,
ABERDEEN, *October*, 1900.

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# A SOCIETY OF ABERDEEN PHILOSOPHERS ONE HUNDRED YEARS AGO.

BY JAMES VALENTINE.

In the middle and latter half of the eighteenth century, the far-north city of Aberdeen, though not rejoicing in such a cluster of intellectual lights as Edinburgh, still contained more eminent men than perhaps any other provincial town in the three kingdoms—the seats of the great English Universities excepted. Aberdeen itself, indeed, with the small neighbouring town of Old Aberdeen, at that time boasted, as it did until within a year or two ago, of being the seat of *two* Universities, each represented in a single college—"University and King's College" being the local Oxford, and "Marischal College and University" the local Cambridge. The eminent men we speak of were, most of them, occupants of chairs in one or other of these institutions.

Of the *Dii majores* of this Aberdonian cluster, there was, first of all, Dr. Thomas Reid, the famous metaphysician and father of the so-called modern system of Scottish Philosophy. Then there was Dr. George Campbell, then and since a man of great influence in the theological world, and still well known for his "Philosophy of Rhetoric," and other works. There was Dr. John Gregory, one of a gifted race, the grand-nephew of the inventor of the reflecting telescope, and whose own writings were more than merely respectable, as his very sensible "Legacy to my Daughters" well attests. There was Dr. David Skene, a young but very able and enthusiastic botanist, the Edward Forbes of his day, a correspondent of Linnæus, who addressed him with the flattering appellation *vir clarissime*. Dr. Alexander Gerard, a solid, clear-headed, and industrious divine, and James Beattie, author of the "Minstrel"—now, perhaps, as well known as any of the others (but then considerably their junior in years)—were also conspicuous in the society of the Granite City.

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Among the minor lights in the group in which these shone as the greater, were Professors Trail, Ogilvy, Dunbar, Gordon, Stewart, Dr. G. Skene, and the Rev. John Farquhar, parson of Nigg, a parish close by Aberdeen—all very respectable "philosophers," as the word was then understood.

Most of these men, as we have said, were professors—some of them, indeed, teaching the same subjects in the two rival colleges within a mile of each other; yet they lived on the most friendly terms, and were strongly bound together by a common zeal for knowledge. Besides, though most of them were somewhat reserved in general society, they were peculiarly formed for choice social intercourse and select friendships. As to Reid, we know that even young children marked the peculiar expression of kindness in his eye. Gregory—a nephew of Reid's, by the way, the mother of Reid having been a Gregory, and one of a family of twenty-nine children—was of a like spirit, but with a mixture of harmless pomposity.* Campbell, though a grave Presbyterian divine, and a stout controversialist, is said to have possessed, above all his compeers, the gift of talking innocent nonsense, and, for his good-nature has been called, in the language of the place, the "sweet-bleedit Doctor."† Skene, we take it, must have excelled in conversation. Beattie, when in health, greatly

* This trait is playfully alluded to in a MS. doggerel composition, in which Beattie's hand is traceable, though not in the following lines:—

> "And likewise thee, Magnus Gregorius,
> We hail with most profound respect,
> For sure it would be most notorious
> Thee amongst others (for) to neglect."

The point of this is explained by a habit which this highly respectable man had, it would seem, of using "for" before the infinitive.

† "Sweet-bleedit" is Aberdonian for "sweet-blooded"—one of the peculiarities of the Aberdeen dialect of the Scotch being the substitution of the sound of *ee* for that variety of the French *u* sound which the Scotch generally use for the English *oo* or *u*. Thus, *Fool*, in Scotland generally *Fule*, is, in Aberdeen, *Feel;* and *Brute* is, in Aberdeen, *Breet.* Another peculiarity of native Aberdeen pronunciation, is the invariable substitution of *F* for *wh*. The two peculiarities together make a bit of genuine Aberdeen speech an astonishment even in Scotland. Thus, "Fa fuppit the peer fite fulpie?" is what a tender-hearted Aberdonian might say on seeing a little dog escaping in the street from a carter's whip—meaning, "Who whipped the poor white whelp?"

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relished the society of kindred spirits. Gerard's manners were equally agreeable.

As we have said, the common desire for mutual improvement drew these men together; and in 1758—chiefly, as would appear, on the initiative of Reid, who, being considerably older than the rest, took the lead among them—a society was formed calling itself the "Philosophical Society in Aberdeen." The name given to the body by outsiders, and by which it was, perhaps, best known at the time, was the "Wise Club." The minutes of the Society are still preserved in MS.,* and form a volume of antiquarian and literary interest. Having had access to this record, we shall give a plain outline of the constitution and working of the Society—really a model of its kind, we believe, and, as we hope to show, productive of good fruit. Only a few general references to this Society in the biographies of Reid, Beattie, &c. have hitherto been published.

The Society was formed in January, 1758. Meetings were held once a fortnight, on the second and fourth Wednesdays of every month. It was enacted that each alternate meeting should "begin with a discourse or dissertation, not exceeding half-an-hour in length, the subject and design of it being intimate" [*sic*] "at a previous meeting." After the discourse was read, every member in his order, "had access to make his observations in a free but candid and friendly manner." The limits of discussion were strictly and, as we think, wisely defined. Thus: "Criticisms upon style, pronunciation, or composition, are to be avoided, as foreign to the design of this Society." "The member that discourses," it was also provided, "may answer to any observations made, but the observer is to make no reply without leave of the President." Each member was required to bring forward a discourse once a year. Occasionally, at the end of a discourse and the observations on it, and, as a rule, at each alternate meeting, a question previously proposed by each member in his order was "conversed upon." The proposer of the question "had access to speak first, and the other members in their course." But no member could speak above twice on the same question without leave of the President. The nature of the subjects of the discourses and questions was carefully defined. We

* In the University Library.

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transcribe the rule on this head in full, as we find it in the Minute Book in Reid's handwriting:—

"The Subject of the Discourses and Questions shall be Philosophical; all Grammatical, Historical, and Philological Discussions being conceived to be foreign to the Design of the Society. And Philosophical Matters are understood to comprehend —Every Principle of Science which may be deduced by just and Lawful Induction from the Phaenomena either of the Human Mind or of the material World; All Observations and Experiments that may furnish Materials for Such Induction; The Examination of False Schemes of Philosophy and False Methods of Philosophizing; The Subserviency of Philosophy to Arts; the Principles they borrow from it and the Means of carrying them to their Perfection. If any Dispute should arise whether a Subject of a Discourse or a Question proposed falls within the Meaning and Intendment of this Article, it shall be determined by a Majority of the Members present."

Care was taken that neither the discourses themselves, nor the observations made upon them, should pass away quite forgotten. Records of them were kept during the greater portion of the Society's existence. The discourses were recorded in one book, each by its author; the questions and abstracts of conversations on them, in a second—a duty devolving, in each case, on the proposer of the question recorded. The minutes and financial accounts were recorded in another book—the same which has given us materials for the present paper.

The Society chose members for itself, seeking only the fit though few. On a desirable "philosopher" being thought of, he was proposed—often, it would seem, without application on his part, or even without his knowing anything about it. No person was elected but by the unanimous suffrage of the Society, after notice given to all the members present or absent, and the due entry of the day of the proposed election in the minutes. The person elected was then "sounded," and, if willing to act, was admitted. Every member, in the early period of the Society, was President for one month in his turn; afterwards the office was held for a year. The President had an approach to autocratic powers.

Our philosophers, according to the custom of those days, kept early hours. They assembled at first at four in the afternoon, and afterwards, for some time, as early as two; but, early, and for the longer period of the Society's existence, hour was five. At no time was the *business* of a meeting

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prolonged after nine. On assembling at two o'clock, the arrangement was "that business begin immediately after dinner." The principle was fully recognised, indeed, that the Society could not subsist on philosophy alone. On all occasions "entertainment" was provided as a relief from the dissertations; but it was a distinct rule that "the members shall leave the meeting-room at ten, and the entertainment shall not exceed eighteenpence a head." The minutes faithfully record the expense incurred on each evening, so long as the charges of the "entertainment" were defrayed from a common fund, as was the case during a good part of the Society's existence. We have also before us a few details in the shape of some of the "bills" rendered by the landlord—for the meetings, we need hardly say, were held in a tavern. Here are two exact transcripts:—

| | | | |
|---|---|---|---|
| "To one Botle Port | £0 | 2 | 0 |
| To Punch | 0 | 2 | 6 |
| To Porter | 0 | 0 | 8 |
| To Pipes & Tobaco | 0 | 0 | 4 |
| Entert. | 0 | 4 | 6 |
| | £0 | 10 | 0 |
| Bill at J. Beans* | 0 | 0 | 6 |
| | £0 | 10 | 6 |

Again— March 11th, 1772;"

| | | | |
|---|---|---|---|
| "To 1 Mutchken Punch | £0 | 2 | 6 |
| To 2 Botels Red Port | 0 | 4 | 0 |
| To 3 do. Porter | 0 | 1 | 0 |
| To Supper | 0 | 3 | 0 |
| To Paips & tobaco† | 0 | 0 | 6 |
| | £0 | 11 | 0 |
| Addition by Entertainment | 0 | 1 | 6 |
| [No date.] | £0 | 12 | 6" |

* There is an entry in the Town's records of date December, 1751, which sets forth that "John Bean was granted liberty to be a maltster and mealseller within the Burgh, on payment of the usual composition of 50*l.* Scots." This is subscribed by John himself in a bold round hand. Whether this victualler was the actual Boniface of the philosophers or not, the house where they met was no doubt a respectable one, and the Society must have given it an additional reputation.

† We know from Reid's correspondence that he smoked, and also used the weed in another form—which latter he calls "a nasty custom."

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The highest bill run up at any one "diet" of the philosophers, was on May 8, 1770, the amount being 19s. 10d. Six members were present on that evening, and the subject of conversation was Question 105, proposed by Beattie, namely, "Whether the use of translations can ever supersede the necessity of studying the Greek or Roman authors in the original languages?" We note that, in 1766, "the Society met in August and September, upon the usual days, but did not enter upon any business," and that the bills for those days are, with the exception of the one above-mentioned and another, the highest recorded. We should mention that, while the President was to keep the members to the business in hand, yet it was a rule that, "when the chair is empty, the members shall not be confined to form, but have all the liberty of free conversation." Another rule was that "any member may take a glass at a by-table while the President is in the chair, but no healths shall be drunk during that time."*

Most of the professors lived within or very near their respective colleges. As some of our philosophers thus resided in Aberdeen and some in Old Aberdeen, the Society met (at least during part of its time) in each place alternately. Such an arrangement, in those days when people in health almost always walked ("wheel carriages" were but just coming into use), implied some personal trouble; and the road connecting the old town with the new—the Howe (*Anglicè*, valley) of the Spital—was very far from inviting. Even but a few years ago a certain vivacious professor (since, happily, removed to a more congenial sphere) felt and described it as a "Pandemonium of mire and darkness," with "oceans of mud" and other horrors. What must it have been when, eighty years before, Reid (not

* While our philosophers had "entertainment" such as may be inferred from the above statements, the ordinary fare in the house of the common farmer in the locality about the period was as follows:—

"*Breakfast:* pottage made of boiling water thickened with oatmeal and eat with milk or ale; or brose made of shorn cabbage or coleworts, left overnight, after either oat-cakes and milk, or, where they have not milk, kail and small beer. *Dinner:* sowens eat with milk; *second course*, oat-cakes eat with milk or kail. *Supper: first course*, during the winter season kail-brose eat about seven at night, while at the fire the tale goes round among the men and maid-servants; *second course*, kail eat with oat-cakes, about 9 P.M. During the summer season there is generally but one course, pottage and milk, or oat-cakes and kail or milk." *Douglass's "Description of the East Coast of Scotland"* (1780).

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Blackie) and his companions traversed it in the dark winter nights, when, besides, it had the reputation of being a peculiar resort of sturdy beggars, vagabonds, and robbers?

But even the "Howe of the Spital" would not be always dark and muddy. On a summer afternoon, the walk to Old Aberdeen, for the New Town professors, would be a healthful recreation. The road passes from the "Howe" over a considerable eminence, from which an excellent view is to be had of a fine sweep of bay, extending from the Girdle Ness to the Buchan Ness, some thirty miles; and we can easily imagine the group of philosophic friends pausing on this height—for they would probably go in company—to admire the scene, and, perhaps, watch the approach of a vessel from some distant voyage. Then would come the dip to the lower level on which the old town stands. No one can look along the outline of pinnacles and towers which this old out-of-the-way place presents without some emotion; and it is not likely that the sight would be lost upon our philosophers, especially the ardent and imaginative Beattie.

But the friends meet. Luckie Campbell has her largest room in order, and nervously straights her apron, and modestly drops a curtsey, as the wise men, one by one, arrive. There are the usual greetings; the weather receives its due share of attention, as does also the haggis. But now to the business. Take one meeting as a specimen.

The date is June 14, 1758. Campbell is President for the day; Gregory, Skene, Reid, Gordon, Gerard, and Farquhar, are present. A strong-built, firmly-knit, dumpy figure, with a kindly but subdued eye, whom one would not readily guess to be, as he is, near fifty, somewhat diffidently takes a MS. from his pocket. His subject is modestly stated—"Some observations of the Philosophy of the mind in general, and particularly on the Perceptions we have by Sight." This is Reid, with his theory—Philosophy according to the principles of Common Sense. Ten months later he volunteers a discourse entitled "Analysis of the Senses." A year after, he continues the same subject. In three months, he gives a paper "On the Sense of Touch." In his next discourse, twelve months afterwards, he resumes his observations on the "Sense of Seeing,"

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followed, after an interval, by a continuation of the same subject. We next meet with the following minute:—

"Oct. 11, 1762.—Present, Dr. Campbell, President; Dr. Reid, Dr. Gregory, Mr. Farquhar, Dr. Skene, Dr. Gerard, and Mr. Gordon.

"Dr. Reid read his discourse, which the Society approved of. But Dr. Reid declined inserting it, in regard he proposed soon to send it to the press along with the other discourses which he had read before the Society."

Here then, within this little circle, may be said to have been the birthplace of the "Inquiry into the Human Mind," a work which, we have Dugald Stewart's authority for saying, revolutionised the philosophy of Scotland and France. The same writer adds that "it is doubtful whether Reid's modesty would have ever permitted him to present to the world the fruits of his solitary studies, without the encouragement which he received from the general acquiescence by his associates (of this Society) in the most important conclusions to which he had been led."

The minute of the Society's proceedings, on the evening when Reid's next discourse was due, contains the following:—"As Dr. Reid has left this country*, no discourse to be expected from him" (Oct. 23, 1764)—referring to his appointment to the Moral Philosophy chair at Glasgow.

Similarly we may trace Campbell's best-known work. On March 8, 1758, "Mr. Campbell" read the first discourse given in the Society—on "The Nature of Eloquence, its various species and their respective ends"; and he was "unanimously requested to record it in the Society's book." Six months afterwards he discourses on the "Relation that Eloquence bears to Logic." Then follows a "continuation of the same subject." In January, 1763, he gives a discourse on "The Dependence of Eloquence upon Grammar." Between March, 1763, and February, 1768, he reads ten similar discourses, most of them "continuations." On March 14, 1769, he discourses on "The Canons of Verbal Criticism." After three other continuations, we come to the minute of January 3, 1771, when the series is closed by a discourse on "Words connecting Sentences and Periods."

This, then, was the "Philosophy of Rhetoric," the whole

* The idiom in Scotland for a district of country.

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of which—or with not a large exception—as Campbell himself informs us, was submitted to the friendly criticism of the Society.

The works of our philosophers, it will thus be noted, were of remarkably slow growth. The modern rate of throwing off a volume or two per month was very far from their idea of authorship. Campbell, however, who had greater facility, as well as greater art, in composition than Reid, had published once or twice (and written many professional lectures and pulpit discourses) during the progress of his chapters on Rhetoric through the Society. On the other hand, the germs of the work had been meditated when the author was a country clergyman, twenty years before he finished his readings in the Society; and the work was not published till five years after the last of these. So Reid, who was ordained to a country charge in 1737,* deeply pondered his philosophical theories during the whole fifteen years of his incumbency, if not for a longer period, afterwards wove them into his professorial lectures, and finally submitted the results to the critical examination of his associates; and it was only in 1764, when he was fifty-four years of age, that he brought them before the world.

In like manner we might trace more or less fully through the Society Gerard's "Essay on Genius," Beattie's "Essay on Truth," Gregory's "Comparative View of the State and Faculties of Man with those of the Animal World," and other works which illustrated the literature of the north at that period.

Among the subjects of discourses read in the Society, and not enumerated above, were the following:—"Euclid's Definitions and Axioms" (Reid); "The Universal Belief in a Deity" (Reid); "Inequality among Mankind," Rousseau criticised (Trail); "Memory and its Influence in Forming Characters among Men" (Gordon); "The Imagination" (Farquhar); "The Use of Leaves of Plants" (Ross); "On a Particular Pro-

* Reid was not a popular preacher. On his first going to the parish of New-Machar, the people threatened to duck him in a pond. His own good qualities, however, and those of his wife, reversed the feeling; and, on his removal, the people were as much inclined to duck those who took him away from them.

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vidence" (Farquhar); "Concerning the Nature of Evidence" (Stewart); "Foundation of Taste in Music" (Gregory),* "The Manner in which Association is influenced by the Causes of the Passions" (Gerard); "Origin of Language" (Professor Dunbar); "On the Advantages and Disadvantages of the Methods of Classifying Plants" (three discourses by Dr. D. Skene); "Practical Geometry" (Trail); "Principles which determine Degrees of Approbation in the Fine Arts" (Beattie); "Influence of Place and Climate upon Human Affairs" (Dunbar).

Reid visited the Society once during his vacation from Glasgow in August, 1771, and no doubt took part in the conversation of the evening—"How are the Proceedings of Instinct to be distinguished from Reason or Sagacity in Animals?" He felt a warm interest in the prosperity of the body, as his correspondence proves. From this, also, we learn how great an influence the speculations of David Hume had on the minds of the members. Reid, in a letter to Hume, dated King's College, 18th of March, 1763, says:—

"A little philosophical society here . . . is much indebted to you for its entertainment. . . . Since we cannot have you upon the bench, you are brought oftener than any other man to the bar, accused and defended with great zeal but without bitterness. If you write no more in morals, politics, or metaphysics, I am afraid we shall be at a loss for subjects."

"Always battling with D. Hume?" he asks, years after, in a letter from Glasgow to his friend Skene.

We have a record altogether of upwards of one hundred and twenty *questions* "conversed upon" during the fifteen years embraced in the records of the Society. These may be ranged, according to their subjects, as follows:—Philosophy, Theology, &c., one-third; Natural Science, one-fourth; Political Economy, one-fifth; Education, Literature, Philology, &c., another fifth. Some of the questions which have deeply agitated society in recent times were the subjects of conversation among our philosophers a century ago. Of such as relate to deep things—

"Providence, fore-knowledge, free-will, fate"—

* Dr. Gregory took an active part in conducting an instrumental musical society in the town. So also did Beattie who took his place in the orchestra with his violoncello.

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we note the following:—"How far human actions are free or necessary?" (proposed by Skene). "Is the human soul confined to any part of the human body; and, if so, to what part?" (Stewart). "Whether mankind, with regard to morals, always was and is the same?" (Reid). "What is the foundation of moral obligation?" (Farquhar). "Whether human laws be binding on the consciences of men?" (Stewart). "Whether every action deserving moral approbation must be done from the persuasion of its being morally good?" (Reid). "Whether brutes have souls; and, if they have, wherein do they differ from human?" (Dr. Skene). The subject of *slavery* came up under different aspects. In March, 1764, the Rev. Mr. Farquhar introduces the question, "What is the origin of the blacks?" Later, Beattie modestly asks, "Whether that superiority of understanding by which Europeans and others imagine themselves to be distinguished may not easily be accounted for without supposing the rest of mankind of an inferior species?" Again, "Whether slavery be in all cases inconsistent with good government?" and "By what circumstances has slavery become supportable to so many nations of mankind?"

In general politics we have the question, "Whether, upon the whole, a high national debt be a benefit to a nation?" followed immediately by this other, "Whether paper credit be not beneficial?" Then we have a question which Aberdeen doctors could, we suppose, afford, at the time, to debate in a purely speculative way, "How does it appear to be equitable that the subjects of a State should be taxed in proportion to their respective fortunes, and not equally overhead, or by any other rule?" The question, "Whether increasing the number of Peers enlarges or diminishes the powers of the Crown?" was followed by the deeper one, proposed by Gerard, "Whether any form of government can be perpetual?" (December, 1766). To a like class belonged questions as to the good and bad effects of provision for the poor by poor's-rates, infirmaries, and hospitals; the effect of machinery on labour and population; Church Establishments, &c.

As to population, Malthus was anticipated, in subject at least, for, in 1766, Professor Dunbar calls the attention of his associates to the question, "Whether good policy may not

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sometimes justify the laying a restraint upon population in a State?" Reid, however, had previously—namely, in June, 1763—put the question in an opposite form, thus, "Whether by the encouragement of proper laws the number of births in Great Britain might not be nearly doubled, or, at least, greatly increased?" To refer to later times—so, perhaps, was Mr. Darwin anticipated by Campbell, when he propounded the curious question, "Can the generation of worms in the bodies of animals be accounted for on the common principles of generation?"

The philosophers did not, so far as we observe, debate the question, "What is poetry?" but they did "handle" two questions closely allied to it, "Whether poetry can justly be reckoned an imitative art?" and (Beattie appropriately asked) "How far versification is essential to poetry?"

Dr. Gregory propounded the question—rather bold for an M.D.—"Whether the art of medicine, as it has been usually practised, has contributed to the advantage of mankind?" while a reverend preacher (Dr. Gerard) asks, "Whether eloquence be useful or pernicious?" Nor were our philosophers regardless of passing events, for they discussed the proceedings of Wilkes (who is described as a "favourite of the mob") and (beforehand) the transit of Venus across the sun's disc in 1761. They were as little insensible to more practical matters, for we find that they conversed on the effects of lime and water respectively upon the soil, and even debated, on Reid's proposal, what measures should be taken to prevent an extravagant rise of servants' wages.

Subjects connected with the business of the members as instructors of youth were pretty frequently discussed. Among these were the comparative merits of public and private education; methods of teaching dead languages; whether longer time should not be given for acquiring Greek in the Scottish Universities; whether a teacher should adapt his instructions to the dull or aid the ingenious; and, finally, whether the commonalty may not have too many opportunities, the good of the State considered, for acquiring a learned education."

Among other subjects of questions were—the food of plants; evaporation, the nature of light; the apparent form and colour of the heavens and heavenly bodies; instinct and

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reason; wit and humour; the ludicrous; justice; benevolence; enthusiasm; luxury, &c.

The following are the more interesting questions discussed in the Society, not previously noticed:—

"What is the cause of that pleasure we have from representations of objects which excite pity or other painful feelings?"—(Campbell.)

"What is the true cause of the ascent, suspension, and fall of vapours in the atmosphere?"—(Stewart.)

"Is there a standard of taste in the fine arts and in polite writing? and how is that standard to be ascertained?"—(Campbell.)

"How far the motion of the earth and light accounts for the aberration of the fixed stars?"—(Trail.)

"Whether justice be a natural or artificial virtue?"

"Wherein does happiness consist?"—(Skene.)

"The nature of contrariety?"—(Campbell.)

"Whether the sense of hearing may not be assisted by art, in like manner as that of seeing is by optical glasses?"—(Stewart.)

"Whether, in writing history, it be proper to mix moral and political reflections, or to draw characters?"—(Farquhar.)

"Whether it is proper to educate children without instilling principles of any kind whatsoever?"—(Reid.)

"Is there any injustice done to an impressed man when he is punished according to the articles of war?"—(Ogilvy.)

"How far the facts relating to the burning of the Roman ships, in the harbour of Syracuse, are reconcilable to the laws of reflection and refraction of light?"—(Gordon.)

"Whether music, painting, or poetry gives the greatest scope to genius?"—(Entered but not discussed.)

The members, we infer, voted on the questions after the conversation; but we have no means of ascertaining the decisions. The books containing abstracts of the discourses and questions were broken up and distributed, each man getting his own, before the close of the Society.

So far as we can gather from the minutes, visitors were not admitted to the Society's meetings. To this rule there were very few exceptions. Dr. Trail, Bishop of Down and Connor, a correspondent of Beattie, was present on one occasion, when he was made an honorary member—the only person on whom that distinction was conferred. The Earl of Buchan—who sought to gratify a silly vanity through a pretended zeal for literature and learning, and an ostentatious patronage of their professors, qualities for which Lockhart has pilloried him in the "Life of Scott"—was also present at one of the meetings, his name being in the sederunt. A standing instance of the

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ruling passion of this personage crops out even as far north as Aberdeen: he gave money to be applied by Marischal College Senatus in an annual competition for a silver pen, associated, of course, with his name.* The only other visitor to the Society was Dr. James Fordyce, a popular preacher in London, and a native of Aberdeen, who was also once present.

The ravages of time, after a period, told on a circle so narrow. Reid's book was scarce dry from the press when, as we have seen, he was called to succeed Adam Smith at Glasgow. Gregory also left soon after for a medical chair, and a good practice in the Scottish metropolis. Skene, the naturalist, was cut off, prematurely, by death. Farquhar and Stewart also died.† Beattie—whose "Minstrel" was written during the currency of the Society—was sometimes away in London, visiting peeresses and poets, or sitting to Sir Joshua; often also he was suffering from domestic affliction or from feeble health. And, though Campbell, who had no family, and kept close to his books, regularly attended the Society, as also did Gerard—who was the best attender of the whole (having been present at 212 out of 239 meetings held during his membership)—yet, with losses so great—the blanks not being filled up—the Society began to decline.

A penal system formed part of the rules; ‡ "forfeits" being attached to certain omissions of duty by the members. The Secretary kept a note of the "forfeits," carrying forward the accumulation of arrears; and towards the close we have such minutes as the following:—

* The honour of "the silver pen" at Marischal College was, at least latterly, conferred annually upon the best scholar in the first or youngest class of Greek. It consisted not in getting a silver pen, but in having one's name engraved on a disc of silver, which was added to the previous discs in a kind of frame hung up in the College Library.

† Professor Ross, one of the members (who, however, attended seldom), was choked, by swallowing a spider in a glass of claret, in 1777.

‡ The practice of imposing fines appears to have been in use, to a great extent, in various bodies about this time; for in the Council Register of the City of Aberdeen we find that, in October of every year, the Council enacted "that ilk (*Anglicè*, every) serovenient (late-comer) after 10 o'clock, in time coming each Wednesday, shall pay 6 shillings Scots money, and each absent from the Council every Wednesday shall pay 12 shillings Scots money."

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"Apr. 16, 1772.—Present, Dr. Beattie, Vice-President; Mr. Gordon, Drs. Gerard and Campbell.

"Dr. Geo. Skene's four discourses not ready; due 100 forfeits.

"Dr. Geo. Skene due 13 forfeits for his abstract of quest. 87.

"Dr. Geo. Skene due 3 forfeits for not opening quest. 106.

"Dr. Geo. Skene's abstract of quest. 106 not ready; due 21 forfeits.

"Dr. Geo. Skene due 17 forfeits for not proposing a question.

"Mr. Ogilvie's abstract not inserted; due 11 forfeits.

"Mr. Ogilvie's discourse not ready; due 12 forfeits.

"Mr. Ogilvie's discourse for this year not ready; due 5 forfeits.

"Discoursed on qu. 111, and Dr. Campbell appointed to make an abstract. Qns. 120 and 122 are to be the subject of conversation at next meeting, which is to be at Mrs. Campbell's, in the Oldtown, to dinner, the 2nd Tuesday of May next."

Sometimes now two or three members assembled, but this formed a quorum only for "entertainment"; one could scarcely discourse to two auditors, nor could three "handle" a question with much spirit. So the Society came gradually to a pause. There is no record of its actual dissolution; but, after the minute of March 9, 1773, the book is blank paper. The number of meetings in all was 244.

Some account in detail of this little Society of Northern Philosophers deserved to be put on record. Its constitution, too, may, as has been already observed, afford hints for similar bodies even now, a century later. Briefly to recapitulate: A small circle of able and true men, all taking an effective part; written discourses, and quiet, but earnest, conference rather than debate; well-defined limits as to subjects, admitting those only that could be at once usefully and dispassionately considered; abstracts of theses and conclusions put on record; the due observance of well-considered rules, but with a margin for "all the liberty of free conversation"; early hours, yet a long sitting to give time for patiently looking at a matter from many points; the stretch of the mental faculties relieved by a moderate "entertainment" for the body—the cultivation of good fellowship thus going hand in hand with that of philosophy:—all these were model features of the Society, whose utility is signally proved by the fact of its having brought to maturity several of the most notable works of the last century.

The meetings of celebrated friends have often been chosen as subjects of illustration by our modern artists. We have the

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Waterloo banquet, with the guests thrown into all sorts of positions, so as to let their faces be seen. Sir Joshua Reynolds and his friends, and Scott and his friends, are better handled; and Phillip's marriage of the Princess Royal is nearly perfect in this matter of grouping. Mr. Phillip, being an Aberdonian, will, perhaps, excuse us for suggesting that a meeting of the Philosophical Society in Aberdeen, either in their resort in Bean's or their meeting-place in the "Aulton," might be no unfit subject for his pencil.

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# ABERDEEN PHILOSOPHICAL SOCIETY.

TITLES OF PAPERS READ BEFORE THE SOCIETY, AND MEMBERS ADMITTED, 1890 TO 1900.

## Fifty-First Session, 1889-1890.

Nov. 12, 1889.

*Papers read:—*

The New Life of Pope. Professor MINTO.

Dec. 3.

On the Proposed Ship Railway—illustrated by Model.
Mr. WM. SMITH (Harbour Engineer).

Jan. 14, 1890.

*The following were elected Office-Bearers:—*

*President*—Professor MINTO.

*Vice-Presidents*—Mr. JOHN MILLER, Dr. BAIN, and Sheriff DOVE WILSON.

*Secretary and Treasurer*—Mr. A. D. MILNE.

*Council*—Mr. JAMES MOIR, M.A., Dr. ALEX. CRUICKSHANK, Rev. J. M. DANSON, Mr. ALEX. FORBES, and Mr. ALEX. WALKER.

*Papers read:—*

Our Leading Crown Colony: its Industries and its People.
Mr. ARTHUR SINCLAIR (late of Ceylon).

Feb. 4.

The Geology of the N.W. Highlands. Professor NICHOLSON.

March 11.

Pageants and Prodigies: with Special Local Reference.
Mr. WILLIAM CADENHEAD.

April 1.

A Glimpse of Greece—with enlarged Illustrations.
Mr. JAMES MOIR (Rector).

April 14 and 15.

Lectures on "The British Museum." Mr. LEWIS FAGAN
(Of the Department of Prints and Drawings, British Museum).

Sept. 15.

Lecture on "Egyptology." Dr. GRANT BEY, of Cairo.

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*During the Session the following were elected Members:—*

Nov. 12, 1889.

A. R. Turnbull, Merchant.

Dec 3.

R. Whyte Mackay, Merchant.
Duguid R. Milne, M.A., Advocate.
John Hay, Carver and Gilder.

Jan. 14, 1890.

Robert G. Nicol, C.E., Assistant Harbour Engineer.
David Davidson, Manufacturer.
J. McKenzie Davidson, M.B., C.M.

Feb. 4.

Thomas Hector, Clerk, Aberdeen School Board.
Arthur Sinclair, late of Ceylon.
J. T. Jamieson, late of Assam.
A. Wigglesworth, Jun., Manufacturer.
D. M. A. Chalmers, M.A., Advocate.
G. J. Scott, Bayview House, late of Calcutta.

April 1.

Donaldson Rose Thom, M.A., Advocate.
Forbes Manson, Manufacturer.
R. W. Reid, M.D., F.R.C.S. (Eng.), Professor of Anatomy, University.

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July 5.

Excursion to St. Andrews.

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## Fifty-Second Session, 1890-1891.

Nov. 18, 1890.

*Papers read:—*

The Faust Legend. Rev. Professor STEWART.

Dec. 9.

*The following were elected Office-Bearers:—*

*President*—Mr. JAMES MOIR, M.A.
*Vice-Presidents*—Dr. ALEX. BAIN, Dr. J. DOVE WILSON, and Mr. JOHN MILLER.
*Secretary and Treasurer*—Mr. A. D. MILNE.
*Council*—Professor MINTO, Rev. J. M. DANSON, Dr. ALEX. CRUICKSHANK, Mr. ALEX. WALKER, and Mr. ALEX. FORBES.

*Papers read:—*

The Description of Books (second part); on the Methods of arranging the contents of a Library, with special reference to the Aberdeen Public Library. Mr. A. W. ROBERTSON.

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Jan. 12, 1891.

Art as an Element of Education. Dr. W. H. WILLIAMSON.

Feb. 2.

A Comparative Estimate of Moral and Intellectual Culture.
Dr. ALFRED GILCHRIST.

March 12 and 13.

Lectures on Morocco.
Mr. J. E. BUDGETT MEAKIN, late Editor of the *Times of Morocco.*

April 6.

On the Past and Present of Musical Art in Britain.
Rev. HENRY W. WRIGHT.

April 21.

On the Dynamics of a Cell, and of Muscular Action.
Mr. W. SMITH (Harbour Engineer).

May 18.

Lecture on a Recent View of Canada.
JAMES BRYCE, LL.D., M.P.

*During the Session the following were elected Members :—*

Dec. 9, 1890.

Robert Anderson, Sub-Editor, *Free Press.*
James Saint, Warehouseman.
Alex. Stephen Wilson, North Kinmundy.
Robert McCombe, Supervisor, Inland Revenue.
Archibald Gillies, Editor, *Aberdeen Journal.*
*(Hon.)* H. E. James A. S. Grant-Bey, M.A., M.D., LL.D., Cairo.

Jan. 9, 1891.

A. Christen, Professor of Languages.
James Stephen, M.A., late Naval Instructor, R.N.
David Byres, late Manufacturer.
Wm. C. Spence, M.A., Teacher.

Feb. 2.

Alex. Lyon, Jun., Merchant.

April 6.

William Mitchell, late Postmaster.
William Watt, F.S.S., *Free Press.*
J. P. Buyers, Inspector of Branches, North of Scotland Bank, Ltd.

April 21.

John Fleming, Merchant.
John Stewart, Agent, Bank of Scotland.
James Stewart, ex-Provost of Banff.

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June 13.

Excursion to Elgin, Pluscarden Priory, &c.

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## Fifty-Third Session, 1891-1892.

Nov. 17, 1891.

*Paper read:—*

On Samuel Johnson. Mr. JAMES MOIR (Rector).

Dec. 15.

*The following were elected Office-Bearers:—*

*President*—JAMES MOIR, M.A., LL.D.

*Vice-Presidents*—Mr. JOHN MILLER, Dr. ALEX. BAIN, and Dr. J. DOVE WILSON.

*Secretary and Treasurer*—Mr. A. D. MILNE.

*Council*—Professor MINTO, Rev. Professor PIRIE, Dr. ALEX. CRUICKSHANK, Mr. ALEX. FORBES, and Mr. ALEX. WALKER.

*Papers read—*

Notes of a recent Journey through the Hauran and Gilead; with a number of Inscriptions discovered during its progress.
Rev. GEORGE ADAM SMITH.

Jan. 12, 1892.

Universities—Present and Nascent.
Mr. PATRICK GEDDES, F.R.S.E.,
Professor of Botany, University College, Dundee.

Feb. 2.

Readings from the Poems of William Dunbar, with a Sketch of the Poet's Life, and remarks on the Poems read.
Rev. WALTER GREGOR, LL.D., Pitsligo.

March 1.

Dr. James Beattie—"The Minstrel." Mr. WILLIAM CADENHEAD.

March 22.

Realism in the Literary Arts. Mr. W. C. SPENCE.

May 3.

Travels in Peru, or a Month amongst the Chunchos.
Mr. ARTHUR SINCLAIR.

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*During the Session the following were elected Members:—*

Nov. 17, 1891.

George Carmichael, Agent, West-End Branch, North of Scotland Bank, Ltd.

Dec. 15.

James Spence, Joint Agent, National Bank of Scotland, Ltd.
John Thomson, Printer, University Press.
A. R. Wilson, Merchant.
Thomas Cochrane, Manager, Town and County Bank, Ltd.
William Mitchell, M.A., D.Sc., F.C. Training College.
James Walker, Merchant, ex-City Treasurer.

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Jan. 12, 1892.

George F. Shirras, Manufacturer.
Charles McHardy, Merchant.

Feb. 2.

Alex. Ledingham, Solicitor, C.A.
Dr. G. G. Macdonald, M.B., C.M.
John Leith, Merchant.
Alex. W. Martin, Manufacturer.
*(Hon.)* Rev. Walter Gregor, LL.D., Pitsligo.

March 1.

Alex. Bain, Surveyor of Taxes.

May 3.

John Gordon, M.D., C.M.
Andrew Davidson, Advocate, C.A.
James Scorgie, late of H.M.I.E.S., Emeritus Prof., Coll. Sc., Poona.

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June 18.

Excursion to Braes o' Gight.

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## Fifty-Fourth Session, 1892-1893.

Nov. 1, 1892.

*Paper read:—*

An Examination of the Thesis—"All Men are equal in Intellect."
Mr. JOHN ADAMS, M.A. (Rector, F.C. Training College).

Dec. 13.

*The following were elected Office-Bearers:—*

*President*—Rev. Professor STEWART, D.D.
*Vice-Presidents*—Mr. JOHN MILLER, Dr. ALEX. BAIN, Professor J. DOVE WILSON, Professor MINTO, and Dr. JAMES MOIR.
*Committee*—Dr. ALEX. CRUICKSHANK, Rev. Professor PIRIE, Mr. ALEX. WALKER, Mr. ALEX. FORBES, Dr. WM. ALEXANDER, and Dr. JOSEPH OGILVIE.
*Secretary and Treasurer*—Mr. A. D. MILNE.

*Papers read:—*

Historical and Psychological Reflections regarding Hypnotism.
Dr. D. G. G. MACDONALD.

Jan. 10, 1893.

The Ludicrous in Burns. Mr. ALEX. MACKIE, M.A. (Principal, Albyn Place School).

Feb. 7.

The Source of Light in Flames.
Professor F. R. JAPP, LL.D., F.R.S.
(Illustrated.)

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March 7.

The History of Robert Gordon's Hospital. (Part I.)
Mr. ROBERT ANDERSON.

Astronomical Work at Cape of Good Hope.
Dr. GILL (Astronomer Royal).

April 4.

Some Popular Delusions from an Artist's Point of View.
Mr. JAMES CADENHEAD, R.S.W.

April 20.

Russian Life, Religion, and Politics. Mr. JAMES PRELOOKER.
(Illustrated.)

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*During the Session the following were elected Members :—*

Dec. 13, 1892.

*(Hon.)* The Most Noble the Marquis of Huntly, LL.D.
*(Hon.)* The Right Hon. James Bryce, D.C.L., M.P.

Jan. 10, 1893.

James Barron, C.E.
James C. Glegg, Ironmonger.
D. M. M. Milligan, Advocate.

Feb. 7.

Thomas Walker, Manufacturer.

March 7.

James Dale, Teacher.

April 4.

J. D. Watson, C.E.

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July 1.

Excursion to Stonehaven, by Portlethen, Muchalls, &c.

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## Fifty-Fifth Session, 1893-1894.

August 11, 1893.

*Papers read :—*

Life in the Ancient Egyptian Family, as gathered from the Sculptures and Writings of the Ancient Egyptians.
Dr. GRANT BEY, Cairo.
(Illustrated.)

Nov. 7.

The Persistent Attachment of Religious Awe to Special Places in Asia Minor. Professor RAMSAY, M.A., D.C.L.
(Illustrated.)

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Dec. 26.

Notes on a Visit to America and the Chicago Exhibition.

Mr. JOHN BULLOCH.

(Illustrated.)

Jan. 30, 1894.

Aberdeen: its Water Supply. Mr. W. DYACK, C.E.

(Illustrated.)

Feb. 13.

The Song (Lied), with Special Reference to the Art Song (Kunslied) and its Composers. Herr J. HOFFMANN, L.R.A.M.

March 13.

Some Old Methods of Marking Time.

Mr. H. F. MORLAND SIMPSON (Rector, Grammar School).

(Illustrated.)

May 1.

University Education in the Middle Ages.

Professor R. ADAMSON, LL.D.

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*During the Session the following were elected Members:—*

Jan. 30, 1894.

Dr. W. Scholle, French Lecturer, University.

March 13.

Professor R. Adamson, LL.D.
W. Jackson, Engineer.
W. Lawson, Merchant.
H. F. Morland Simpson, Rector, Grammar School.
John S. Stuart, Accountant, G.N. of S.R. Co.

May 1.

Rev. Martin Lewis, B.A.
George Sim, Naturalist.

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June 30.

Excursion to Hallforest, Castle Fraser, Cluny, and Monymusk.

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## Fifty-Sixth Session, 1894-1895.

Nov. 9, 1894.

*The following were elected Office-Bearers:—*

*President*—Rev. Professor GEORGE PIRIE, LL.D.

*Vice-Presidents*—Dr. ALEX. BAIN, Professor J. DOVE WILSON, Professor MINTO, and Dr. ALEX. WALKER.

*Committee*—Dr. ALEX. CRUICKSHANK, Mr. ALEX. FORBES, Dr. WM. ALEXANDER, Dr. JOSEPH OGILVIE, Professor R. W. REID, Dr. W. H. WILLIAMSON, and Mr. W. C. GOOD.

*Treasurer*—Mr. WM. MILNE, C.A.

*Secretary*—Dr. JAMES MOIR.

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*Papers read:—*

Greek Music. Professor HARROWER, M.A.
(Illustrated.)

Nov. 23.
The Phonograph. Professor JOHN G. M'KENDRICK, LL.D., Glasgow.
(Illustrated.)

Jan. 8. 1895.
Sir David Lindsay, Poet and Reformer.
Mr. WM. MURISON, M.A.

Jan. 29.
The History of Robert Gordon's Hospital. (Part II.)
Mr. ROBERT ANDERSON.

Feb. 12.
Glimpses of the Early Church in Rome, as Mirrored in its Monuments.
(I.) The Pompeii of Christendom.
(Illustrated.)

Feb. 13.
(II.) The Pictorial Bible of the Early Christians.
(Illustrated.)
Rev. ARCHIBALD PATERSON, M.A., Roslin.

March 12.
Professor Cruickshank—His Life, Character, and Teaching.
Dr. JOSEPH OGILVIE.

March 26.
Indian Architecture. Professor JAMES SCORGIE.
(Illustrated.)

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At the end of the Session a Conversazione was held in Marischal College.

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*During the Session the following were elected Members:—*

Nov. 9, 1894.
George Mollison, Accountant.
Rev. Professor Paterson, D.D.

Nov. 23.
T. R. Gillies, Advocate.
H. F. Menzies, M.A., B.Sc.
Wm. Murison, M.A.
Walter A. Reid, C.A.
Rev. James Sutherland, M.A., D.D.
W. Stewart Thomson, Principal, Aberdeen Civil Service College.

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Jan. 8, 1895.

*(Hon.)* Professor John G. M'Kendrick, LL.D., Glasgow.
Henry Alexander, Editor, *Free Press.*
Professor H. J. C. Grierson, M.A.
Professor Hamilton, M.B.
Thomas Lillie, Banker.
Hugh Macdonald, Solicitor.

Jan. 29.

Dr. A. T. G. Beveridge.

Feb. 12.

Patrick Cooper, Advocate.

March 26.

John Buckley Allan, Advocate.
George Russell Gowans, R.S.W.
A. Neil Macdonald, Solicitor.
Alex. S. Macdonald, Merchant.
Dr. George Watt.

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June 29.

Excursion to Meigle, Kirriemuir, and Den of Airlie.

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## Fifty-Seventh Session, 1895-1896.

Oct. 22, 1895.

*Papers read:—*

Greek Vase—Paintings in relation to Greek Mythology.
Miss HARRISON, LL.D.
(Illustrated.)

Nov. 12.

Plain Song. Dr. A. T. GORDON BEVERIDGE.

Jan 13, 1896.

*The following were elected Office-Bearers:—*

*President*—Mr. ALEX. FORBES.
*Vice-Presidents*—Dr. ALEX. BAIN, Professor J. DOVE WILSON, Professor MINTO, Dr. ALEX. WALKER, and Rev. Professor PIRIE.
*Committee*—Dr. ALEX. CRUICKSHANK, Dr. WM. ALEXANDER, Dr. JOSEPH OGILVIE, Professor R. W. REID, Dr. W. H. WILLIAMSON, Mr. W. C. GOOD, and Mr. PATRICK COOPER.
*Treasurer*—Mr. WM. MILNE, C.A.
*Secretary*—Dr. JAMES MOIR.

*Papers read:—*

The Spaniard; His Home, Amusements, and Occupations.
Rev. JOHN JAMESON, Madrid.

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Feb. 11.
Light and Colour. Dr. MACKENZIE DAVIDSON.
(Illustrated.)

Feb. 25.
Japan. JAMES TROUP, M.A. (H.B.M.'s Consul at Yokohama).
(Illustrated.)

March 10.
The Etcher. Mr. LOUIS FAGAN (late of British Museum).
(Illustrated.)

March 24.
Artistic Work in Iron. Mr. DAVID MCHARDY.
(Illustrated.)

April 14.
Trip into Songland. Mr. W. MILNE GIBSON.
(Illustrated.)

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*During the Session the following were elected Members.—*

Oct. 22, 1895.
Rev. Professor W. L. Davidson, M.A., LL.D.
Wm. Thomson, Forest Road.

Nov. 12.
Herbert A. Giles.
James Hay, Vice-Convener of the County.
Rev. W. S. Swanson, M.A.

Jan. 13, 1896.
James E. Crombie.

Feb. 11.
Dr. J. Scott Riddell.
G. M. Thomson, Merchant.

Feb. 25.
Rev. David Beatt, D.D.
Rev. Wm. Borland, B.D.
C. M. Brown, North of Scotland Bank.
W. Kendall Burnett, Advocate.
Lachlan Mackinnon, Yost., Advocate.
Dr. Thomas Milne.

March 10.
Alex. Blacklaw, Solicitor.
W. H. Shepherd, Merchant.
W. P. Sherriff, Secretary, Northern Assurance Co.

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June.
Excursion to the Banks of the Findhorn.

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## Fifty-Eighth Session, 1896-1897.

Oct. 27, 1896.

*Papers read :—*

Egypt. Mr. JAMES BAKER, F.R.G.S.

Dec. 1.

Ways and Traits of the House of Commons.

Dr. ROBERT WALLACE, M.P.

Dec. 22.

*The following were elected Office-Bearers :—*

*President*—Mr. ALEX. FORBES.

*Vice-Presidents*—Dr. ALEX. BAIN, Professor J. DOVE WILSON, Professor MINTO, Dr. ALEX. WALKER, and Rev. Professor PIRIE.

*Committee*—Dr. ALEX. CRUICKSHANK, Dr. WM. ALEXANDER, Dr. JOSEPH OGILVIE, Professor R. W. REID, Dr. W. H. WILLIAMSON, Mr. W. C. GOOD, and Mr. PATRICK COOPER.

*Treasurer*—Mr. WM. MILNE, C.A.

*Secretary*—Dr. JAMES MOIR.

*Papers read :—*

The Creation of Matter by Mind, proved from the Signs of its Action on the Primal Elements.

Rev. WM. PROFEIT, M.A., Glenbucket.

Jan. 1897.

"The Tempest." Rev. MARTIN LEWIS, B.A.

Feb. 17.

The Recent War between China and Japan.

Mr. ARTHUR DIÓSY.

(Illustrated.)

Feb. 9.

China, Old and New. Dr. H. A. GILES.

April 27.

The Madrigal. Mr. JOHN KIRBY.

(Illustrated.)

May 11.

Modern Surgery. Dr. J. SCOTT RIDDELL.

(Illustrated.)

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*During the Session the following were elected Members :—*

Dec. 1, 1896.

James A. Ross, Harbour Treasurer.

George J. Shepherd, Chairman of Chamber of Commerce.

Jan. 19, 1897.

James Ducat, Manager, Aberdeen Jute Co.

Robert Mitchell, Logierieve.

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Feb. 17.
Wm. Robbie.
March 9.
James Smith, Merchant.

June 26.
Excursion to Drumtochty, Fettercairn, Edzell, and Brechin.

## Fifty-Ninth Session, 1897-1898.

Oct. 25, 1897.
*Papers read:—*
Primitive Belief; or, The Primitive View of the World.
Mr. G. F. STOUT, M.A.

Nov. 16.
Southern Iceland and the First Ascent of Öraefa Jökull.
Mr. F. W. W. HOWELL, F.R.G.S.

Dec. 1.
Some Lessons of the Diamond Jubilee. Mr. ARTHUR DIÓSY.

Dec. 21.
*The following were elected Office-Bearers:—*
*President*—Dr. JOSEPH OGILVIE.
*Vice-Presidents*—Dr. ALEX. BAIN, Professor J. DOVE WILSON, Professor MINTO, Dr. ALEX. WALKER, Rev. Professor PIRIE, and Mr. ALEX. FORBES.
*Committee*—Dr. WM. ALEXANDER, Dr. JOSEPH OGILVIE, Professor R. W. REID, Dr. W. H. WILLIAMSON, Mr. W. C. GOOD, Mr. PATRICK COOPER, and Dr. THOMAS MILNE.
*Treasurer*—Mr. WM. MILNE, C.A.
*Secretary*—Dr. JAMES MOIR.
*Papers read:—*
John Greenleaf Whittier, Poet and Patriot. Mr. JOHN LEITH.

Feb. 17, 1898.
Robert Louis Stevenson. Rev. WM. BORLAND, B.D.

March 7.
Expression in Greek Sculpture. Dr. JOHN FORBES WHITE.

March 17.
Nepaul. Dr. DANIEL WRIGHT.

March 29.
Victorian Poetry. Professor H. J. C. GRIERSON.

April 18.
Pictures of the Devil. Mr. JAMES E. CROMBIE.
(Illustrated.)

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*During the Session the following were elected Members :—*

Nov. 16, 1897.

George Bisset, City Treasurer.
John H. Craigie, School Inspector.
Thomas Fotheringham, Treasurer, Gordon's College.
Brodie Fraser, *Journal* Office.
Thomas Jaffrey, Manager, Savings Bank.
Dr. George A. Maconachie, Lt.-Col. Brigade-Surgeon, I.M.S.
George Nicol, Stockbroker.
R. G. Wilson, Architect.
Dr. Daniel Wright, Surgeon-Major, I.M.S.
Fred. Wright, Granite Merchant.

Dec. 1.

Dr. James Davidson, Brigade-Surgeon Lt.-Col., I.M.S.
Thomas Garland, Farmer.
James R. Roddick, Bank Agent.
K. M. Simpson, Solicitor.

Dec. 21.

Wm. Johnston, M.A.
Wm. Smith, Printer and Publisher.

March 29, 1898.

W. Y. McDonald, Joint-Cashier, Union Bank.

April 18.

Brigade-Surgeon Robert Gray.

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June 25.

Excursion to Coupar-Angus, Dunkeld, and Blairgowrie.

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## Sixtieth Session, 1898-1899.

October 31, 1898.

*Papers read :—*

A Holiday in Kashmir.
Professor ALEX. THOMSON, M.A., Calcutta.

Nov. 8.

Egypt, Past and Present. Miss BRODRICK.

Nov. 28.

Chinese Statesmen and Reform.
Rev. GILBERT REID, M.A., China.
(Illustrated.)

Dec. 27.

The Calendar. Principal STEWART, D.D., St. Andrews.

Jan. 16, 1899.

Cyprus. Professor GEDDES, Edinburgh.

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Jan. 31.
The Recent University Movement in America.
Professor ROYCE, Harvard, U.S.A.

Feb. 20.
Shakespeare, the Historian. Mr. C. SANFORD TERRY, M.A.

March 6.
Travels of Lord Byron.
Mr. GEORGE G. NAPIER, M.A., Glasgow.
(Illustrated.)

April 30.
Ballads. Mr. W. STEWART THOMSON, F.R.G.S.

---

*During the Session the following were elected Members :—*

Nov. 8, 1898.
John Croll, Solicitor.
Dr. W. Christie Crowe.
Professor D. W. Finlay, M.D.
Charles McLeod, M.A., Grammar School.

Nov. 28.
Robert Milroy, C.A.

Dec. 27.
C. Sanford Terry, M.A., History Lecturer, University.

March 6, 1899.
Chas. F. Ludwig, Shipbroker.

April 3.
James Turreff, N. of S. Bank.

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June 24.
Excursion to Turriff, Deveronside, and Banff.

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## Sixty-First Session, 1899-1900.

October 27, 1899.
*Papers read :—*
The Physical Constitution of Vowels and Words.
Professor JOHN G. M'KENDRICK, LL.D., Glasgow.

Nov. 20.
Some Experiences in West Africa. Miss MARY H. KINGSLEY.
(Illustrated.)

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Dec. 18.

*The following were elected Office-Bearers :—*

*President*—Dr. W. H. WILLIAMSON.

*Vice-Presidents*—Dr. ALEX. BAIN, Mr. ALEX. FORBES, Dr. JAMES MOIR, Dr. JOSEPH OGILVIE, Rev. Professor PIRIE, Dr. ALEX. WALKER, and Professor J. DOVE WILSON.

*Committee*—Mr. W. C. GOOD, Mr. ALEX. MACKIE, Dr. G. A. MACONACHIE, Dr. THOMAS MILNE, Rev. Dr. JAMES SUTHERLAND.

*Treasurer*—Mr. WM. MILNE, C.A.

*Secretary*—Mr. W. KENDALL BURNETT, M.A., Advocate.

*Papers read :—*

The Art of the Etcher. Dr. W. H. WILLIAMSON.
(Illustrated.)

Jan. 22, 1900.

Lord Tennyson and his Lyrics. Madame NORRIS ADAMS.
(Illustrated.)

Jan. 30.

Some Characteristic Tendencies of American Civilisation.
Professor ROYCE, Harvard, U.S.A.

Feb. 20.

Agriculture in Aberdeenshire 140 years ago.
Mr. JAMES WILSON, M.A., B.Sc., Fordyce Lecturer, Aberdeen University.

March 13.

Creation and the Infinite, as seen in the relations subsisting between Internal and External Nature.
Rev. WM. PROFEIT, M.A., Glenbucket.

April 2.

Flavius Josephus, the Jewish Historian.
Professor A. R. S. KENNEDY, Edinburgh.

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*During the Session the following were elected Members :—*

Nov. 20, 1899.

Dr. J. Lewis M'Intyre, University Lecturer.

Dec. 18.

Dr. John Robb, Brigade-Surgeon Lt.-Col., I.M.S.

Jan. 22, 1900.

Chas. M'Gregor, Lecturer, Church of Scotland Training College.
And. Neilson, Wood Merchant.

Feb. 20.

George Paterson, 20 Westfield Terrace.

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July 14.

Excursion to Glentana, Lochs Kinord and Davan, and Aboyne.

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## LIST OF EXCURSIONS.

1846—Cove.
1847—Dunnottar and Fetteresso.
1851—Fettercairn and Gannochie, and the Burn.
1852—Haddo House and Braes o' Gight.
1853—Haddo House and Fyvie Castle.
1854—Mount Keen and Castle of Birse.
1855—Glamis Castle.
1856—Ben-na-chie.
1857—Castle of Edzell and Brechin Cathedral.
1858—Monymusk and Paradise.
1859—Laurencekirk and the Burn.
1860—Kildrummy and Alford.
1861—Forest of Glentana and Mount Keen.
1862—Montrose and Den Fenella.
1863—Slains Castle and Bullers of Buchan.
1864—Blairgowrie and Dunkeld.
1865—Elgin and Pluscarden Priory.
1866—Aboyne and Mount Keen.
1867—Ballater and Balmoral.
1868—Fordoun, Fettercairn, and Cairn o' Month.
1869—Braes o' Gight and Ellon.
1870—Dunecht House, Midmar Castle, and Banchory.
1871—Arbroath.
1873—Craigievar Castle.
1876—Fordoun and Fettercairn.
1878—Dunecht and Banchory.
1879—St. Andrews.
1880—Loch Kinord.
1881—Banchory, Finzean, and Aboyne.
1882—Newburgh and Slains.
1883—Den of Airlie.
1884—Fraserburgh, Aberdour, and Boyndlie.
1885—Kildrummy and Tap o' Noth.
1886—Inverurie and vicinity.
1887—Banff.
1888—Aden, Abbey of Deir, Pitfour, &c.
1889—Dunecht and the Observatory, the Barmekin and Midmar Castle.
1890—St. Andrews.
1891—Elgin, Pluscarden Priory, &c.
1892—The Braes o' Gight.
1893—Portlethen, Muchalls, and Stonehaven.
1894—Hallforest, Castle Fraser, Cluny, and Monymusk.
1895—Meigle, Kirriemuir, and Den of Airlie.
1896—The Banks of the Findhorn.
1897—Drumtochty, Fettercairn, Edzell, and Brechin.
1898—Coupar-Angus, Dunkeld, and Blairgowrie.
1899—Turriff, Deveronside, and Banff.
1900—Glentana, Lochs Kinord and Davan, and Aboyne.

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# SELECTION OF PAPERS

## READ BEFORE THE ABERDEEN PHILOSOPHICAL SOCIETY BETWEEN 1890 AND 1900.

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*September* 18, 1890.—Professor MINTO, *President, in the Chair.*

Dr. GRANT BEY, of Cairo, a distinguished graduate of the Aberdeen University, being at present in Aberdeen, kindly agreed to deliver a lecture on "Egyptology" to the Society.

Professor Minto introduced the lecturer, and Mr. Wm. Henderson, ex-Lord Provost, who had recently spent some time with Dr. Grant Bey in Cairo, spoke of the pleasure it had been to meet him then, and of the important work—professional and antiquarian—which Dr. Grant Bey had been engaged in.

The lecture was illustrated by a number of interesting specimens of great antiquity and value, and by a *fac-simile* of the famous papyrus of Ani (1400 B.C.).

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## *An Introduction to Ancient Egyptian History.*

By H. E. JAMES A. S. GRANT BEY, M.A., M.D., LL.D., Cairo.

For nearly a quarter of a century (the period of my residence in Egypt) I have devoted a considerable portion of my spare time to the study of the History of Ancient Egypt and in collecting antiquities illustrative of that history, so that I have now a large museum of my own in Cairo, where every Wednesday evening during the winter season I read papers on Egyptological subjects, and illustrate my lectures by means of the specimens of antiquities I have collected. This is quite a labour of love on my part, yet I seem to be impelled to do it as a duty, for while "we should not envy any man who knows more than ourselves, we ought to sympathise with those who know less, and therefore seek to communicate to others what we know ourselves in order to beget and propagate in them a desire for knowledge which ever increases with the acquisition of it and forms a solid basis of happiness." Those who possess knowledge should therefore endeavour to make it accessible to others; for all true knowledge should be dedicated to the use and advantage of our fellow men.

On this account I have always been willing and even desirous to share with others the pleasure and instruction derived from my recreative studies, and this is one of my apologies for addressing you this evening. Another apology, however, is that, as the University of Aberdeen nurtured and educated, if it did not create, my talents, the city of Aberdeen has a right to call me to account as to the use



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I have made of these talents; and what better medium could it find for doing so than the Philosophical Society?

After the death of Alexander the Great at Babylon in 323 B.C., at the early age of 33 years, his half-brother, Philip Arrhidæus, took the reins of government, and afterwards became the guardian of Alexander's son, who was born after his father's death. Alexander's conquests were so extensive (you will remember that he is said to have wept because there was not another world for him to conquer) that Philip Arrhidæus delegated the principal generals of Alexander's army to govern the different provinces as lieutenant-governors. In this way Egypt fell to the lot of Ptolemy Soter (Saviour), the natural son of Alexander's father, and one of his most distinguished generals. For private or political reasons he adopted the patronymic of Lagus (who was not his real father), and thus the Ptolemies are spoken of as the "Lagidæ."

Alexander's body was embalmed at Babylon, and in the second year after his death the funeral procession started to take the body to Ægæ, in Macedonia, which was the burial place of Alexander's ancestors; but Ptolemy Soter, wishing to strengthen his position in Egypt, found the means to gain over the general in charge of the procession and had the body brought to Memphis. He gave out that the body was to be buried in the Oasis of Ammon, in the temple of the god who had acknowledged Alexander as the son of Zeus,* or Jupiter Ammon; but in the meantime he set about building a royal mausoleum at Alexandria, the town of Alexander's creation, which in his own mind he considered the most fitting place for guarding the embalmed body of its mighty founder. The funeral procession having thus been diverted to Egypt, the body of Alexander was deposited for the time being at Memphis, where it had to remain till the royal mausoleum at Alexandria should be finished, which was not till the next reign. Ptolemy had a gold coffin made for it, which was afterwards carried off and a glass one substituted for it by an unworthy successor. It was this Ptolemy who projected and commenced to build the Pharos lighthouse at Alexandria which was completed by his son. He encouraged literature, and formed at

*Alexander, calmly reviewing the course of his march from Sestus and Ilium to Memphis, could explain it only on the supposition that he was no child of a human father, so he determined to obtain from the oracle of Ammon in the Libyan Oasis a solution of this mystery. The response greeted him as the son, not of Philip, but of Zeus.

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Alexandria an academy with a museum and library. Two years before his death, in 285 B.C., he abdicated in favour of his son, Ptolemy Philadelphus (brother-loving), who was a liberal patron of learned men. He caused the Hebrew Scriptures to be translated into Greek, which version has been called the Septuagint, as it is said that 70 translators were engaged in the work. He also enriched the grand library at Alexandria with all the MSS. he could lay hold of, and those he could not obtain he got copies of for the library.

It was in this way that the history of Ancient Egypt came to be collated and translated into Greek. Hitherto the history of the Ancient Egyptians had lain hid in the archives of the temples known only to the priests, who religiously preserved them against the intrusion of the uninitiated, and even made a point of misleading those travellers who were favoured with access to their Universities and temples. Ptolemy Philadelphus employed a native Egyptian priest named Manĕtho to write out a history in Greek for the library. If the tables had been turned, and the Egyptians had asked the Greeks to write out the history of Greece in the hieroglyphic language for the temple and University library at Heliopolis, not a single Greek could have been found equal to the task, for the opportunities afforded the Greek savants for acquiring a knowledge of the hieroglyphics seem to have been thrown away, not one of them ever attaining to an intelligent understanding of the hieroglyphic language. Hence, after its disuse in the fourth century of our era it became entirely lost.

Many of the Egyptians, on the other hand, were proficient scholars in the Greek language and literature,* and amongst them we must number Manĕtho, who manifestly aimed, in his history of Egypt, to far outvie that of Greece, while it was written on the same lines. He, being a priest, had free access to the archives stored away in the temple libraries, so that he had every facility for getting the necessary materials for writing out a history of his country. Now, although the original work of Manĕtho is lost, we have extensive authentic extracts from his work at second and third hand and we gather from them that he divided his history into two grand divisions, namely, I., The Mythical Period, and II., The Historical period. These periods he divided into sub-divisions, called dynasties,

*From the 26th dynasty (665 B.C.) downwards the Greeks had established schools of learning at Naukratis and other places, where the Egyptians were taught the Greek language and literature.

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so that his Mythical Period had four dynasties (two of gods, one of demi-gods, and one of prehistoric kings), his Historical Period was divided into thirty dynasties, extending from Mena, the first king of the first dynasty (probably about 4800 B.C.), to Nectanebo II.,* the last king of the thirtieth dynasty (345 B.C.).

The Historical Period has been reclassified and brought down to our time by the late Dr. Lepsius, and the following is his classification :—

1st—From the beginning of the first dynasty to the end of the twelfth, *i.e.*, from about 4800 B.C. to 2340 B.C. This he called "*The Primæval Monarchy.*"

2nd—From the beginning of the thirteenth dynasty to the end of the seventeenth, *i.e.*, from about 2340 B C. to 1819 B.C. This he calls "*The Hyksos Period.*"

3rd—From the beginning of the eighteenth dynasty to the end of the twenty-sixth, *i.e*, from about 1819 B.C. to 527 B.C. This he calls "*The New Empire.*"

4th—From the beginning of the twenty-seventh dynasty to the end of the thirtieth, *i.e.*, from 527 B.C. to 332 B.C., when Alexander the Great entered Egypt as a conqueror.† This he calls "*The Persian Domination.*"

Then came (5th) "*The Ptolemaic Period,*" from 322 B.C. to 30 B.C. ; and after that (6th) "*The Roman Period,*" from 30 B.C. to 395 A.D. Then we have (7th) "*The Byzantine Period,*" from 395 A.D. to 640 A.D. ; and lastly (8th), "*The Mohammedan Period,*" from 640 A.D. to the present date.

The first dynasty of the Mythical Period commenced with a god who was very appropriately named Ptah or Phtah, which means "the one who opens," although the root word means "to mould" or "carve." This god opens the scene. At first the Egyptians had no name and no similitude for this being. He was simply described as

*Nectanebo II. was the last reigning prince of Egyptian blood, for after him there was "no more a prince in the land of Egypt" (prophecy of Ezekiel, 572 B.C.). He was conquered by the Persians under Artaxerxes III. (Ochus), and thus "the sceptre of Egypt departed away" (prophecy of Zechariah, 487 B.C.).

†Just about a year before, he had defeated Darius III., the Persian monarch, near Issus, a town on the S.E. border of Asia Minor,

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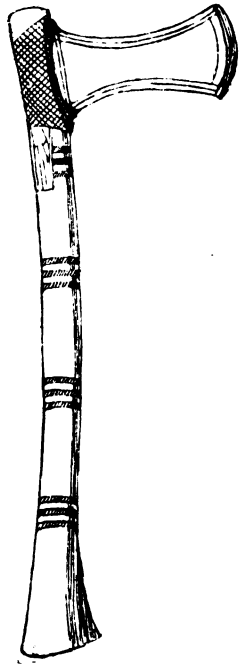
Nouter, a hieroglyphic word signifying deity (fig. 1). The Coptic* word Nout (Nout), for God, shows the relationship of that language to the old hieroglyphic. The hieroglyphic symbol for the deity is like an ancient battle-axe (fig. 1), conveying to us the impression that the supreme deity of the ancient Egyptians was looked upon as "a man of war, who taught their hands to war and their fingers to fight." This supreme being is represented as being self-existent and self-producing. He is the primordial principle through which creation takes place. He gave the materials to Ra (fig. 2), the sun-god, in order that he might create the earth, reminding us of the teaching of the Christian religion that God did not himself create, but created all things through his son Jesus Christ. Ra is said to create by *speaking*, which, according to M. Naville, is one of the most important points of resemblance between the Egyptian and the Hebrew cosmogonies. Herodotus tells us that a temple was erected to Phtah by Menes, the first king of the primeval monarchy, thus indicating the high antiquity of his worship. This supreme being was the source of another (a female principle), which, like himself, was as yet unnamed, although in later times they were known by the names of Ptah and Sekhet. On this account he was called the double god. Hence for a time the religion of the Egyptians was a kind of dualism. From the idea of a supreme deity, in himself both father and mother, producing another being, probably originated the first triad or trinity as exoterically (publicly) taught. The triad now under consideration



Battle Axe—Nooter, symbol of Deity.
1. Nooter.
(From Gizeh Museum.)
Nooter—Deity.
This hieroglyph was used as the symbol of Deity because the root meaning of the word is "mighty."

*The Coptic language is simply the ancient hieroglyphic language written with Greek letters. This was discovered by the young Champollion about 1830, so that it has proved to be the true key to the hieroglyphics.

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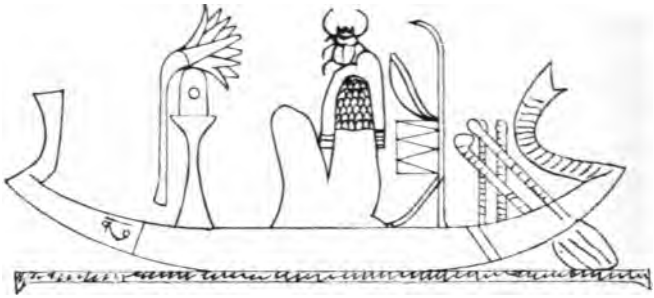
consisted of Ptah, Sekhet,* his wife, and Imhotep,† their son, and they were worshipped as a triad at Memphis. The sacred beetle (Kheper) was associated with Ptah, and in this connection was a symbol of creative power (Kheper means "to take form," "to come into being").



2. Ra, the Sun god as Creator. He is seated in his sacred boat, which is sailing through the sky. For a head he has a Scarabæus sacer, the emblem of Creation. (From the Papyrus of Ani.)

The ancient Egyptian priests were keen observers of nature, and they never failed to render her their handmaid, both by way of popularising their esoteric (secret) doctrines and of making the common people not only willing but enthusiastic subjects. The beetle rolling its ball of mud to deposit it in the sand, and then running away and leaving it without any further care, was an ordinary spectacle for all Egyptians, and no doubt their natural curiosity tempted them to find out what the ball of mud would turn to, and they would not be long in discovering that, after lying in the sand for a time exposed to the heat of the sun, a live beetle came out of it. This habit of the beetle afforded the priests a striking example for conveying to the minds of the uninitiated the idea of a creator and how creation was effected. The beetle was therefore taken to personify their supreme uncreated being Ptah; and he is represented in their exoteric (public) doctrine as giving materials to Ra (the sun god) for the creation of the world and all that it contains. Whether the priests at first knew any better or not, they taught exoterically that the beetle had no female, just as their god Ptah appears at first without any helpmate. In later times it must have

* Sekhet represented the red rays of the sun that destroyed the enemies of Ra.

† Imhotep was the god of medicine of the ancient Egyptians.

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been generally known that there were female beetles that laid eggs and thus produced young. The priests, however, continued to teach the same exoteric doctrine concerning the creation. Errors in religion once introduced into the ritual die hard, however transparent these errors may become. The purely spiritual worship of the early Egyptians in due time took a materialistic turn, at least, in their exoteric, or public, teaching. There is no difficulty in tracing the insidious gradual development of idolatry out of an originally pure and spiritual worship; and the result of this worshipping the creature more than the Creator led to the complete moral decay of the nation, and ultimately to its utter destruction.

3. Phtah.
(From Dr. Grant Bey's Museum.)

Bunsen says that the animals in the animal worship of Egypt were mere symbols, but became, by the inherent curse of idolatry, real objects of worship. Maspero believes that the religion of the Egyptians, at first pure and spiritual, became grossly material in its later developments, and that the old faith degenerated. This is only in accordance with human nature; it is repeated in the history of churches calling themselves Christian. Hence the danger of religious symbols behind which the ignorant are unable to penetrate with the eye of faith and see the great presiding Spirit to whom they are meant to be a stepping stone.

The heart of man—and more especially of the spiritually ignorant man—is prone to a sensuous worship, and thus to idolatry. Hence the common Egyptian people who were not initiated into the mysteries of their religion were clamorous to have a sight of their god, and the priests had to satisfy them; but they must have been sadly puzzled for awhile as to what form they should give their deity. At last their fertile brains, influenced by their esoteric (secret) doctrines, concocted an embryonic figure (fig. 3) to represent to the people the embodiment of the Supreme Being. The idea in

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itself reminds us of the shapeless protoplasm of the Agnostics, which they suppose to be the embryo of all the life that exists on the earth.

In due time the female principle inherent in Ptah, and now called Sekhet, was represented as a lioness-headed goddess; and Imhotep, their son, appears as the third person of this Triad. As I have already stated, this Triad was worshipped at Memphis, and in due time we find that all the principal towns as they became prominent chose their own special Triad, so that Abydos in Upper

*a.* Osiris. *b.* Isis with her child Horus

4. The most universally worshipped Triad.
(From Dr. Grant Bey's Museum.)

Egypt had for its Triad Osiris, Isis, his wife, and Horus, their son (fig. 4). Thebes had Amen-Ra, Maut, his wife, and Khons, their son. The Triad of Nubia was Khnoum, Sati, and Anouké, and so on, *ad infinitum.* These Triads were all intensely local, with the exception of that of Abydos, which was universally worshipped throughout Egypt, and in later times even got mixed up with the gods of Greece and Rome.

In this way the young Christian religion, growing up in the midst of these decaying transitionary religions, and having to be fed

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from them by way of converts, could not but manifest more or less in its structure some of the peculiarities of those religions that preceded it.

You will understand this better by the drawings (figs. 5, 6, 7, 8, 9, 10). You can easily see from them how accommodative Greek,

5. Serapis or Jupiter Serapis.
(From pottery images in Dr. Grant Bey's Museum.)

Serapis is the Greek form of the hieroglyphic words Asar Hapi—the hidden Osiris. This statue was brought by Ptolemy Soter from Sinope, and he persuaded the Egyptian priests to adopt it as the image of their Osiris, in order that Egyptian and Greek could worship the same image and in the same temple. The dodge was only partially successful, as in purely Egyptian cities they would have none of it.

6. Serapis or Jupiter Serapis.
(From pottery images in Dr. Grant Bey's Museum.)

This is another form of the same, only more distinctively Greek.

Roman, and Christian were when competing with each other and endeavouring to absorb the idolatrous Egyptians.

I have thus introduced you to the first dynasty of the Mythical Period, and have explained to you the nature and functions of two of the principal gods (Phtah and Ra) of this dynasty, and how the Egyptians formed their Trinities and Triads.

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The second dynasty of this period consisted also of purely divine beings as rulers, who lived among, and reigned over, primeval unfallen man, and thus had intimate relations with their subjects. By the end of this dynasty, however, it would appear that this intimate relationship (for some reason or other unrecorded) was broken up, so that deity walked no more with man. But, as man is naturally a religious being, he smarted severely under this with-

7. Juno—Isis.

(From pottery images in Dr. Grant Bey's Museum

Here we have the figure of Juno rising out of the disk of the moon, but she has the head-dress (moon's disk and cow's horns) of Isis. On each side of her is the eagle, emblem of Jupiter. Through this combination Roman and Egyptian could worship in the same temple.

(Roman period.)

drawal of his god, with whom he had lived, up till then, on terms of the closest intimacy, and deity took pity on his forlorn condition by coming again to the earth, but under a form bearing more affinity to man (an indication of man's degeneracy, and of the deity's clemency and condescension). This was effected in the following manner:—The sky and earth were deified, the former called Nou-t (a goddess), the latter called Seb (a god), and from their union sprang a family at once celestial and terrestrial combined. This f[illegible] called the family of Osiris, which introduced the [illegible]ynasty of demi-gods.

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Osiris, the head of this family of brothers and sisters, is represented as a benefactor of mankind, reigning with his family at Abydos, over the whole of Egypt, or in other words, over the whole world. He is represented as being an agriculturist, teaching his people the art of husbandry, and instructing them in peaceful occupations and pursuits. He was the type of everything good.

8. Madonna and child, with sufficient resemblance to Isis and Horus to allow Christian and Egyptian to worship together.
(Christian period, early. Pottery.)

9. Madonna with the head-dress of Isis and child on her knees.
(Later Christian period. Pottery.)

This part of the Osirian story has been put in verse by a Scottish bard. It is titled "The Marriage of Nou-t (the sky) with Seb (the earth) and its Beneficent Result":—

"A new relationship, yet old,
In ancient story has been told:
The Sky's descent to meet the Earth,
And shower its blessings on each hearth.
Its azure hue beams on its face,
While o'er the Earth in close embrace

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10. Madonna and child, after Murillo.
(From a bronze modern charm in Dr. Grant Bey's Museum.)
Here we have the moon transferred from the head to be put under the feet, and the Madonna is crowned, so that she still partakes of the nature of Isis, the moon goddess.

It bends, and holds, with loving clasp,
The rounded globe within its grasp.
Could we discern these movements made,
As zephyrs waft, o'er hill and glade,
The loving whispers sent from heaven
Of 'peace on earth,' of sins forgiven,
We might not think the Egyptians wrong
Who led the Sky, in nuptial song,
The Earth to wed, and thus began
A race at once both God and man
(The offspring of this union fair)
On Earth to dwell, for man to care."

Osiris, after civilising his own subjects, set out to carry his beneficent work to other races. It was during one of these journeys that Osiris' brother Set, whom he had left in charge at Abydos, conceived the wicked plan of usurping the throne. Up to this time the Osirian family had lived together at Abydos in Paradise-peace and concord. Ambition, however, on the part of Set exceeded its legitimate limits, when he with seventy others conspired to kill Osiris on his return. The conspiracy was so far successful that Osiris was killed and dismembered and the fragments of his body thrown into the Nile, and Set, triumphant, established his throne at Abydos, and reigned over the whole of Egypt for 400 years. In the meantime, Isis, the sister and wife of Osiris, hearing what had happened to her husband, walked up and down the bank of the Nile in great distress, disconsolate and weeping. Some fishermen came to her aid, and, by means of their fishing nets, they dragged the Nile, and thus found all the fragments of Osiris' body and brought them to Isis, who was now joined by her sister Nephthys, the wife of Set, who did not sympathise with her husband in his wicked deed; and it was after Isis and Nephthys had wept over the dismembered body of Osiris that a marvellous thing happened.

Isis had lived all these years with her husband, and had remained childless, but now after his death she miraculously gave birth to a son, whom she named Horus, and who became the

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avenger of his father. Osiris now appears in the nether world as the judge of the dead, and is spoken of as the sun of the night, while Horus in a miraculous way emerges from his dead father and appears as the sun on the horizon at sunrise, dispelling the darkness that shrouded the earth and bringing light and life to drooping nature. This represents the contest between light and darkness, or, in other words, between good and evil. The account of the war waged by Horus against Set has been preserved to us in the inscriptions on the Temple of Edfou. In these inscriptions Horus takes his explicative name Har-em-Khuti (Harmachis), meaning Horus on the two horizons. He had a court, ministers, an army, and a fleet. His eldest son Harhoudti, the heir presumptive to the throne, commanded the troops. The Prime Minister, Thoth, the god of learning, had his geography and rhetoric at his finger ends; besides, he was the historian of the court, and was charged by a royal decree to carefully register the victories of his lord and invent for them well-sounding names. A sovereign so beloved as Horus was, and so well served with a fully-equipped army and fleet, could not long endure the usurpation of Set, so in the 363rd year of Set's reign Horus declared war, and,

11. Origin of present form of Christian cross, not derived from the cross of Christ, but from the ancient Egyptian symbol of life; and the Labārum, not derived from the initial letters of the Greek word for Christ, but as explained below.

A very early coptic Christian tombstone (Gizeh museum). The upper cross is a simple hieroglyphic monogram, *du Ra*, or gift of the sun god; then there is the Alpha and Omega and a dove.

The lower cross has the side lock of Horus attached to it. This probably gave origin to the Labārum, and not X P, the two Greek letters at the beginning of Χριστος (Khristos).

The crosses here do not have any connection with the cross of Christ, which was probably a tree or pole without a cross beam. The lower one is simply a modified form of the Egyptian sign of life. The side lock of Horus attached to it would signify life comes from Horus, but Christ takes the place of Horus, hence life comes from Christ.

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putting himself at the head of his army, he descended the Nile on his war boat, ordered marches and counter-marches, had pitched battles here and there, causing the various towns to submit, till the whole of Egypt lay prostrate at his feet. His triumph, however, was not so complete as to destroy the usurper, for after many vicissitudes the quarrel between the two demi-gods had to be submitted to Seb, who judged of their pretensions and decided that they both should have place and power. He therefore divided the Valley of the Nile into two kingdoms, named Upper and Lower Egypt; and Upper Egypt was apportioned to Horus, while Lower Egypt was given to Set. This was the priests' way of teaching exoterically the origin and continuance of good and evil upon the earth; but what their esoteric conception of this subject was we can only guess by drawing a parallel with the Bible record of an ambitious rebellion in heaven, and of the seed of the woman that was to bruise the head of the serpent. It was out of this Osirian myth that the most universally worshipped Triad of the Egyptians grew. This Triad (fig. 4) was represented by Osiris, Isis, his wife, and Horus, their son, and the influence of this Triad is unquestionably marked on the pages of the history of the Christian Church.

12. Early coptic Christian tombstone. (Gizeh Museum.) The side lock of hair of Horus is attached to the upper limb of the cross.

In order to follow this up, however, we would have to turn aside a little to see how the Egyptian conception of a Triad or Trinity affected the Greek and Jewish philosophers who dwelt in Egypt and made a special study of the Egyptian religion, the doctrines of which they mixed up with their own philosophies and taught this mixture in the schools of Alexandria. This alongside the continuous chain of Egyptian religious influence demonstrates very strikingly how the symbolism of one religion gets grafted on to another when they exist for any length of time in close contact (see figs. 11, 12, 13, 14, 15, 16, 17.) I have thus led you up to the end of the 3rd dynasty of the

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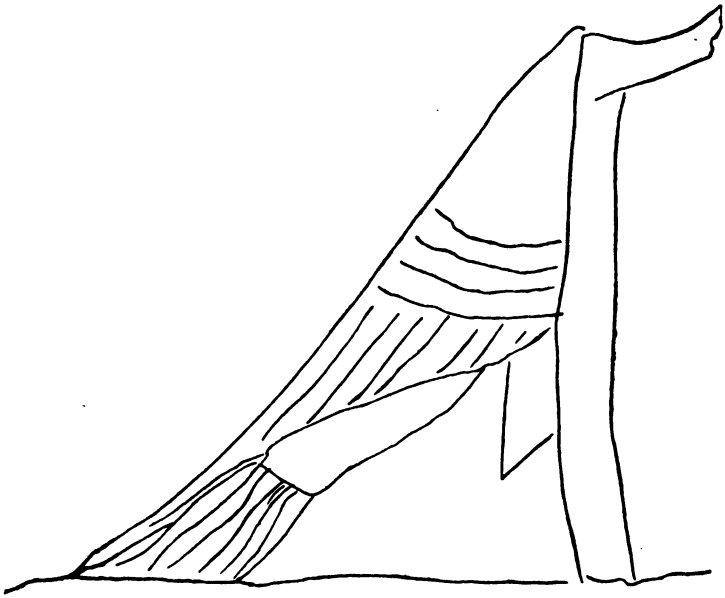
Mythical period, and the narrative, although exceedingly idealistic, must have struck you as marvellous and in a high degree religious.

We now come to the 4th dynasty of this period which has been called the dynasty of prehistoric kings. This sounds a little more real and less idealistic than the previous three dynasties. Here we come to discuss sublunary subjects, properly so called, and have really to deal with the history of the origin and development of the ancient Egyptian civilisation.



13. Dual God—father and son forming one god.
(From an ancient Egyptian mummy bandage in Dr. Grant Bey's Museum.)
The front part is the battle axe—symbol of the Almighty—and the bird's body coming out of the battle axe is Horus, the son of Osiris and Isis.

Herodotus has very truly told us that Egypt is the gift of the Nile, and geologists now tell us, probably as truly, that the Delta of the Nile has taken about 8,000 years for its formation. It does not require, therefore, any great stretch of the imagination to suppose that before the commencement of the formation of the Delta, the Nile did not flow farther north than Khartoum, but there took a south-westerly course and became a confluent of the Congo (at least in as far as the White Nile is concerned). The Blue Nile probably flowed into the Red Sea. This supposition is strengthened by the

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fact that both these rivers contain similar fish, and have some species of fish in common that are not found in the rivers of Eastern Africa (*e.g.*, the Polypterus Niloticus).

Some 8,000 years ago, then, a convulsion of nature must have taken place whereby the Nile was cut off from being a tributary of

**14. Trinity in Unity.**
**(From a porcelain statuette in Dr. Grant Bey's Museum.)**
**One of the ancient Egyptian triune gods.**
**Ram's head—Khnum or Spirit god.**
**Embryonic body—Phtah, Father of the gods.**
**Wings and tail of Horus, son of Osiris and Isis.**

**15. Horus as the destroyer of the works of the wicked one.**
**(From a stela of Horus in the Gizeh Museum.)**
**This group ultimately changed into our St. George and the Dragon.**
**Horus, the son of Osiris, symbolically represented as having come to the earth to take vengeance on the evil principle for the murder of his father. He tramples crocodiles (darkness) under his feet. Overhead is the head of the Evil principle as if beheaded; then he holds in his hands the symbols of evil spirits, showing his power over them.**

the Congo, and made for itself its present independent channel to the Mediterranean. Such convulsions of nature are not at all unusual in the history of the life of our planet, and as the science of geology is the study of the formation of our earth with its vicissitudes, geologists, therefore, can easily understand what I mean by a convulsion of nature, as the whole history indelibly inscribed on the strata of

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the earth as on the pages of a book, is composed of a series of sea and river deposits, and of upheavals and depressions of the earth's crust. About 6,000 years ago, then, there would be just an apology for a Delta, so that where the ruins of Memphis now are, it would have been quite swampy and uninhabitable; but a little to the south of this there would be sufficient arable land to attract northwards the civilisation already established at Abydos—a civilisation by a long way too far advanced to allow of its having been a product of that soil.

From the language and religion of the very early Egyptians, we judge that the people who first reached the Nile valley were of that race which Ethnologists call Turanian, and which had its origin in the neighbourhood of the Caspian Sea. The Turanians, while still centralised, and before their offshoots struck out to populate the whole world, had already developed a monosyllabic picture language, wrote on papyrus, were advanced astronomers, and worked in metals. Like the descendants of Cain, they were also musicians.

16. Horus and the crocodile, approaching the form of St. George and the Dragon.
The Greek way of pronouncing George sounds not unlike Horus.
(From a statuette in the Louvre, Paris.)
The emblem of Horus was the hawk, so that he is often represented with a hawk's head.

It is, therefore, in my opinion, to the region of the Caspian that we are to look in order to find the birth-place of the far-famed civilisation of the ancient Egyptians, whose extraordinary learning has captivated the minds of all thinking peoples, and whose wisdom has been extolled by the very highest authority. The physical conditions of the Nile valley favoured the rapid march of this exotic civilisation, but I don't believe in Buckle's theory that perfect physical conditions will create civilisation and evolve an advancing race; something more than mere physical conditions are necessary to effect this.

The Turanians up in the neighbourhood of the Caspian Sea were



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sun-worshippers, and no doubt the different families of them that settled on the banks of the Nile during the prehistoric dynasty brought this worship with them, and established it at Heliopolis. It was probably during this dynasty that the "Book of the Dead," as it has been called, began to be formulated, being based on a hymn to the sun-god that the Turanians may have brought with them from their native country.

17. Coptic Christian Tombstone. (Gizeh Museum)

The equilateral triangle was the symbol of the Christian Trinity.

The bird is for the Phoenix, which was adopted as early as the 4th century as a Christian emblem of Immortality.

According to M. Maspero, the primitive Egyptians were dark-skinned; and it is remarkable that the majority of the skulls of the Egyptians of the first six historical dynasties are dolichocephalic, which again points to their Turanian origin. M. Maspero also believes that the sculpturing of the Sphinx at Gizeh in the native rock and the building of the temple of the Sphinx belong to the dynasty of the prehistoric kings.

These Turanians, then, had found their way to the valley of the Nile from time to time in tribes or families, and had settled as independent kingdoms here and there along its banks. At this time the present Delta would have been partly a gulf of the sea, with sand islands in it, and partly a swamp, fit only for the crocodile and hippopotamus to wallow in; yet these prehistoric kings had built a sanctuary and a city where the ruins of Heliopolis are now.

In time, as each community increased in numbers, they would find the place too narrow for them, and thus they would begin to fight among themselves, and after a time the one or the other would gain the mastery. In this way, no doubt, Manĕtho's Historical Period commenced with the first dynasty headed by Mena, a word that simply means "The Establisher." The combination of these kingdoms under Mena concentrated their power so that, by the fourth dynasty, we find their buildings towering to the sky in the shape of pyramids, which are not simple heaps of stones piled up anyhow,

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but masses of building most accurately planned and put together with astronomical and geometrical bearings, and with a mathematical skill that defies competition even at the present day. A reasonable date for the oldest of these constructions is about 4,000 B.C. Now, this being accepted, let me ask to what age must we throw back the first beginnings of Egyptian civilisation?

Another argument in favour of the great antiquity of Egyptian civilisation is drawn from facts recorded in history in connection with what has been called the Sothic cycle, which was an astronomical period of about 1,460 years.

Our year consists of 365¼ days, the time taken by the earth to make the circuit of the sun, but the ¼ is only accounted for every 4 years by adding a day extra to the month of February. In this way the months of our year correspond with the seasons. The ancient Egyptians a very long time ago had a solar year of 365 days, and they chose for their New-Year's day the day when Sirius or Sothis (the dog star) rose exactly with the sun. This was no doubt an unforeseen means of introducing into the Egyptian calendar what has been called the Sothic cycle of 1,460 years. Having commenced their year with this unchanging astronomical event while at the same time they clung to their vague year of 365 days, by which all their religious festivals were guided, you can easily understand that by the loss of ¼ day every solar year the festival that commenced in July in one year would be six hours in advance the next year, and so on going through all the seasons until they came round again to the point where they started, viz., at the heliacal rising of Sirius. This was a period of about 1,460 years. Now it must be manifest to the mind of any ordinary reasoning being that the Egyptian vague year of 365 days—the period taken by the earth to make a revolution in its orbit round the sun according to their more ancient observations—would have been noted and worked upon for probably two Sothic cycles before that cycle was fixed at 1,460 years.

The heliacal rising of Sirius was celebrated by extraordinary rejoicings, so that when we come down to the classic period, when Greeks and Romans visited Egypt, one of these events is recorded as having taken place on the 20th July, 139 A.D.; and one author also inadvertently tells us that the previous cycle was known by the name of the Era of Menophres (XIX. Dynasty). This takes us back at once to about 1322 B.C. But there is every evidence that

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this was not the first cycle of the kind, for when we go another cycle back, *i.e.*, to 2782 B.C., we find that the Egyptians were so civilised that they had already detected the difference in the year between 365 days and 365¼ days, and, undoubtedly, after a long series of observations, they now knew how long it would take to right itself.

When we go still another cycle back, viz., to 4242 B.C., only about 250 years before the building of the Great Pyramid, which is acknowledged by many to be full of the profoundest mathematics and astronomy, and whose stones demonstrate that the builders were as far advanced in science and art, if not more so, than we are at the present day. When the Great Pyramid was built the jewel drill and the bronze saw, set with precious stones for teeth, were nothing new.* In the temple of the Sphinx, which is considered

* "THE MECHANICAL METHODS OF THE PYRAMID BUILDERS.

"The methods employed by the ancient Egyptians in cutting the hard stones, which they so frequently worked, have long remained in doubt. Various suggestions have been made, but no actual proof of the tools employed or the manner of using them has been obtained.

"From the example of work which I was able to collect at Gizeh, and from various fixed objects of which I took casts, the questions so often asked seem now to be solved. The typical method of working hard stones, such as granite, diorite, basalt, &c., was by means of bronze tools; these were set with cutting points far harder than the quartz which was operated on. The material of these cutting points is as yet undetermined, but only five substances are possible: beryl, topaz, chrysoberyl, corundum or sapphire, and diamond.

"The character of the work would certainly seem to point to diamond as being the cutting jewel; and only the consideration of its rarity in general and its absence from Egypt interfere with this conclusion, and render the tough and uncrystalised corundum the more likely material.

"Many nations, both savage and civilized, are in the habit of cutting hard materials by means of a soft substance (as copper, wood, horn, &c.) with a hard powder supplied to it. The powder sticks on the basis employed, and this being scraped over the stone to be cut, so wears it away. It is therefore very readily assumed by many persons that this method must necessarily have been also used by the Egyptians, and that it would suffice to produce all the examples now collected. Such, however, is far from being the case, though, no doubt, in alabaster and other soft stones this method was used.

"That the Egyptians were acquainted with a cutting jewel far harder than quartz, and that they used this jewel as a sharp-pointed graver, is put beyond doubt by the diorite bowls, with inscriptions of the fourth dynasty cut int[illegible] which I found fragments at Gizeh. These hieroglyphics are

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by some eminent Egyptologists as a prehistoric building, you can see traces of the jewel drill having been used, and also in the interior of the sarcophagus or coffer in the Great Pyramid.

In this way it would appear as if the Egyptians of the 40th century B.C., could construct buildings with the hardest stone about as easily as we do now in wood. Mr. Petrie has calculated that one single revolution of the ancient Egyptian jewel drill carried the bore one-tenth of an inch into the hardest stone, and in the same way one can deduce from the saw marks on the sarcophagus in the Great Pyramid with what rapidity the operation took place when jewels were used. Surely, then, there can be no great objection to add on still another cycle to lead us up to such an advanced civilisation. This will bring us up to 5702 B.C.

It seems to me that this is not an unreasonable date. At anyrate it gives us about the length of the present Christian era for the

incised with a very free-cutting point; they are not scraped nor ground out, but are ploughed through the diorite with rough edges to the line. As the lines are only 1-150 inch wide, it is evident that the cutting point must have been much harder than quartz, and tough enough not to splinter when so fine an edge was being employed—probably only 1-200 inch wide. Parallel lines are graved only 1-30 inch apart from centre to centre.

"We therefore need have no hesitation in allowing that the graving out of lines in hard stones by jewel points was a well-known art. And when we find on the surfaces of the saw-cuts in diorite grooves as deep as the 1-100 inch, it appears far more likely that such were produced by fixed jewel points in the saw than by any fortuitous rubbing about of a loose powder. And when, further, it is seen that these deep grooves are almost always regular and uniform in depth and equi-distant, their production by the successive cuts of the jewel teeth of a saw appears to be beyond question. On a granite core broken from a drill-hole other features appear which also can only be explained by the use of fixed jewel points. Firstly, the grooves which run around it form a regular spiral with no more interruption or waviness than is necessarily produced by the variations in the component crystals. This spiral is truly symmetrical with the axis of the core. In one part a groove can be traced with scarcely an interruption for a length of four turns. Secondly, the grooves are as deep in the quartz as in the adjacent felspar, and even rather deeper. If these were in any way produced by loose powder, they would be shallower in the harder substance—quartz—whereas a fixed jewel point would be compelled to plough to the same depth in all the components.

"That the blades of the saws were of bronze we know from the green staining on the sides of saw-cuts and on grains of sand left in a saw-cut. The forms of the tools were straight saws, circular saws, tubular drills, and lathes."—*Petrie's "Pyramids and Temples of Gizeh."*

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Egyptians to work up to the diamond drill, and to an excellence in sculpture and architecture that has never been surpassed.

That we may not appear to be theorising without a sufficient basis, I shall here explain a side-light that has been unexpectedly thrown upon Egyptian chronology by Mr. W. Flinders Petrie.

A well-known inscription now in the Gizeh museum, and which belongs to the time of Mer-en-Ra Pepi, a Pharaoh of the sixth dynasty, according to Manĕtho, tells us that, in the Egyptian month of Epiphi, the Nile was just in that condition that always exists during our month of October.

Now, it is a simple matter of calculation to ascertain exactly when the Egyptian month of Epiphi corresponded to our month of October. This, of course, would be the case just once in every 1,460 years, and, calculating for these various Sothic cycles, we find that the month Epiphi corresponded to our month of October in the year 400 B.C., 1910 B.C., 3420 B.C., and 4930 B.C.*

The first two dates are quite impossible for the sixth dynasty; the last also exceeds the limits of all chronologers, hence we are restricted to 3420 B.C. as the date inadvertently recorded by this seasonal statement made in a sixth-dynasty inscription. Mr. Petrie's calculation and deduction have been accepted by M. Maspero.

The hieroglyphic inscriptions of the fourth dynasty are already as far advanced as ever they were afterwards. Words are spelled out phonetically, and determinatives are used. There is no difficulty in deducing from this style of writing that it was originally simple pictures representing the thing to be expressed. Thus, the picture of a cat would be for a cat, and that of a lioness for a lioness, and so on; but the Egyptians must have speedily found that the emotions of the mind could not so easily be pictured, and in course of time they would discover the means of representing a word instead of an idea.

This, indeed, was effected at a very early date as follows:—A number of words were chosen that commenced with a distinct, characteristic, alphabetic sound, and whatever these words represented, whether a vulture, a lioness, a house, &c., the animal or thing would now be pictured to represent merely the first sound in the pronounced name of that animal or thing. The language now became alphabetic, but to make sentences and even words distinct a great many pictures were still interspersed as determinatives.

* The true Sothic cycle is in reality about 1,510 years.

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It is a tedious process for a people to learn to represent the human form or even to make portraits, yet under the fourth dynasty we have portrait statues of men sculptured out of the hardest material that no metal tool could touch without turning its edge. And the first six dynasties, ending about 3200 B.C., give us buildings extraordinary for their gigantic size and accuracy in detail—even an advanced knowledge of astronomy and a perfect picture-writing. All this meant a long period of time for development.

For several centuries after the sixth dynasty everything was paralysed, and, in fact, the Egyptians themselves were almost entirely ignorant of the history of their country covered by the seventh, eighth, ninth, and tenth dynasties. Very likely during this period fresh invaders had arrived that kept the country in a more or less disturbed, divided, and retrograde state, till concentration of power again appears with the advent of the eleventh dynasty, when monuments are again erected, but of an inferior workmanship as compared with sixth-dynasty work.

The above theory is so far favoured by the fact that the majority of the Egyptian skulls known to belong to the first six-dynasty period are dolichocephalic (long-headed), while the majority of those of the subsequent dynasties are brachycephalic (broad-headed). This proves a pretty extensive intermixture of at anyrate two races.

Now, although the eleventh dynasty begins with very poor work, yet by the end of the twelfth dynasty, *i.e.*, 2290 B.C., Egyptian art had regained the excellence it manifested at the end of the sixth dynasty. This is a proof, I think, that the native Egyptian had not been annihilated during this blank in his history, but had only been subjugated for a time by invaders who had no *penchant* for erecting monuments. Even during the eleventh dynasty, we find at Beni-hassan pictures representing Semites coming to Egypt as settlers, and their being registered as Egyptian subjects. In the twelfth dynasty we have the "Book of the Dead" fully developed, and it shows that the Egyptians had for ages previously believed in a future world, in the recompense of the just, and in the punishment of the wicked hereafter.

The thirteenth and fourteenth dynasties show again a falling off in art, which points to internal dissensions, and we know from history that the fifteenth dynasty was ushered in by a Semitic race called Hyksos, or shepherd kings, and they held sway in some parts of Egypt even up to the end of the eighteenth dynasty, 1500 B.C., when a king rose up that knew not Joseph.

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This king was Rameses I., who introduced the nineteenth dynasty and commenced the Hebrew bondage, which was continued under the reigns of Seti I., Rameses II., and part of the reign of Menephtah, up to the time of the Exodus, which must have taken place a year or two after the death of Rameses II., who was the king that sought Moses' life for having slain an Egyptian. It was during the Hyksos period that Abraham came down into Egypt, and, as he spoke a Semitic language, he required no interpreter. Again, Joseph rose to power under a Hyksos Pharaoh, and when Jacob came to stay with his son in Egypt, and was introduced to Pharaoh, Pharaoh spoke with him in a Semitic language. The Hyksos Pharaohs were the Pharaohs that favoured Joseph and his race, so that there is not a whisper of bondage so long as Joseph lived, and even after his death the Hebrews would be treated kindly for Joseph's sake, while the Hyksos still reigned. The bondage, therefore, probably commenced with the nineteenth dynasty, when the Hyksos period came to an end, and a king rose up that knew not Joseph.

The nineteenth dynasty is in many respects the most interesting period of Egyptian history, for besides comprising the bondage and the exodus of the Hebrews, it numbers amongst its illustrious rulers the Rameses who was so lauded by the Greeks under the name of Sesostris. This is one of the most remarkable periods of renaissance in Egyptian history, both as to conquest and art, but, fascinating as the subject is, we cannot now pursue it further.

I hope, however, that this glimpse at ancient Egyptian history which I have now given you will prove a stimulus to you to obtain a deeper insight into the marvellous civilisation of that extraordinary people that at one time numbered over six millions, but that are now represented by only about five hundred and fifty thousand Copts.

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## APPENDIX.

### *On the Civilisation of the Ancient Egyptians.*

The sudden appearance in Egypt of a highly perfected civilisation at the beginning of the historical period gives rise to the conjecture that there must have been either a long prehistoric Egyptian period, or its civilisation was brought from outside. That there was a prehistoric period in Egyptian history we know from the Egyptian historian Manĕtho, but where this period was spent remains conjectural. Some would have us believe that the structures leading up to such perfected works as the pyramids are to be found at the bottom of the Atlantic on the submerged island of Atlantis, which by some convulsion of nature was swallowed up in mythical times. Others, with more show of reason, trace back the Egyptian to a primitive Turanian race, that had its origin in the neighbourhood of the Caspian Sea. At anyrate, Assyriologists tell us that long before the Accadians settled in the valley of the Euphrates and developed their cuneiform writing, which has come down to us, their forefathers, who spoke a Turanian language and inhabited the Caspian district, were workers in copper—possibly bronze—and had a written picture language, and worshipped the sun.

This was ages before the Biblical Flood, and, as man had already existed for thousands of years on the earth, it does not, or ought not to surprise us that we should find traces of this picture language in all the different quarters of the globe. I have not the slightest doubt in my own mind that the original race of mankind was one, and this one race has been called by ethnologists the Turanian. Let us for a moment, then, imagine that the whole earth was more or less populated by this race. The language would originally be one and the same, but as the different families separated and came into the midst of new surroundings, the language would change, more particularly by way of acquiring new words. The root words, however, would remain the same, while the monosyllabic and agglutinative character of the language would not change. Now, in the history of the Turanian language, it would appear as if some great catastrophe* had taken place on the surface of the earth, that divided the race into a northern and southern division, that kept separate for many ages. The northern portion kept up their picture language, and handed it on to Asia Minor, China, and America. In China it became modified,

* Such a catastrophe is indicated by the geological evidence we have of the submergence to the depth of 2,000 feet of a large part of the crust of the earth (northern hemisphere) at the end of the glacial period (some 20,000 years ago), and this at a time when man was upon the earth.

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and gave rise to the present Chinese syllabic character, while in America and Asia Minor it continued to be used in its pristine form, that is at the present day puzzling philologists to decipher. The Accadians, who are an off-shoot from the northern division of Turanians, seem to have left their mountain fastnesses after the catastrophe that we have referred to, and crept down into the valley of the Euphrates, and there set up a kingdom, which commenced the civilisation of Assyria; and the original picture language of the Accadians in time became the cuneiform of their successors (a Semitic race), with the appearance of which we are now so well acquainted.

The southern division of the Turanian race interests us most, because they probably were the first inhabiters of the Nile valley, and brought with them an already well-advanced civilisation. They retained the picture language of their forefathers, which, instead of developing into cuneiform, became in turn hieroglyphic, hieratic, demotic, and, last of all, Coptic. During the long period, however, taken to introduce these changes (some 5,000 years), the language got very much mixed up with foreign words of a much later origin, and so different from the primitive Turanian as to be classified under another name, but there is no difficulty in tracing the root words of the ancient hieroglyphics to a Turanian source.

There is no evidence that the civilisation of Egypt was developed in Egypt itself; it must have been transported from some other country. Till lately it was believed that the use of the papyrus for writing was introduced about the time of Alexander the Great; but Lepsius found the hieroglyphic sign of the papyrus roll on monuments of the twelfth dynasty; afterwards he found the same sign on monuments of the fourth dynasty, which is not very far off from Menes himself, the founder of the Egyptian historic period; and little doubt is now entertained that the art of writing on papyrus was understood as early, if not earlier than the time of Menes.

The fruits of investigation in this as in many other subjects are truly most marvellous. It is very remarkable that as soon as men were planted on the banks of the Nile, they were already the cleverest men that ever lived, endowed with more knowledge and more power than even their successors. It does seem strange that, when the excavator digs in the dust and silt of 5,000 years ago in order to discover some traces of infant effort—some rude specimens of the ages of gradual development—he finds only articles so perfect and exquisite in workmanship that they excel the supreme stretch of modern ability. How can we support the fact that before Noah was cold in his grave men were adepts in construction and in the fine arts, and that their achievements were for magnitude such as we never attempt to emulate? The explanation, no doubt, is that there were races of men not affected by the Noachian Flood. As we have not yet dis-

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covered any trace of the rude, savage Egypt, but have seen her in her very earliest manifestation already skilful, erudite, and strong, it is impossible to determine the order of her inventions. Light may yet be thrown upon her rise and progress, but our deepest researches have hitherto shown her to us as only the mother of a most accomplished race. How they came by their knowledge is matter for speculation—that they possessed it is matter of fact. We never find them without the ability to organise labour, or shrinking from the boldest efforts in digging canals and irrigating, in quarrying the hardest rock, in building and in sculpture. As early as the fourth dynasty, and, according to Maspero, even in the prehistoric period, the Egyptian was acquainted with the use of the precious-stone drill, and with saws having precious stones for teeth. Look at the record of Egypt's greatness as preserved in her works. The river Nile, in the time of Menes, the first king of the first dynasty, 4800 B.C., was diverted from its course by cyclopean embankments to make a site for the city of Memphis and reclaim the morass at the apex of the delta. The artificial lake of Moeris in the Fayoum was created by a twelfth-dynasty Pharaoh (2300 B.C.) as a reservoir for the waters of the Nile. It is said to have been 400 miles in circumference and 350 feet deep, with subterranean channels, floodgates, locks, and dams by which the surrounding country and delta were watered at low Nile. We dare not attempt such a work nowadays, at least it would seem so. The Pyramids, now in their ruins, are still the marvel of mankind. Look at the magnificent mason-work therein displayed. In many cases the joints are scarcely perceptible, and not wider than the thickness of fine writing paper. The Labyrinth, a twelfth-dynasty monument which aroused the astonishment of Herodotus, had 3,000 chambers, colonnades, and statues. Again, look at the Temple of Karnak, covering a square, each side of which is 1,800 feet. Travellers and savants one and all have been astonished by the magnificence and the prodigality of workmanship here to be admired—courts, halls, gateways, pillars, obelisks, monolithic figures, sculptures, rows of sphinxes, are massed in such profusion, that the sight is too much for modern comprehension. The whole valley and delta of the Nile were covered with temples, palaces, tombs, pyramids, and pillars.

The state of society in the early days of Egypt approximated very closely to our modern civilisation. Religion consisted in the worship of one God and the practice of virtue; 42 commandments prescribed the duties of men to themselves, their neighbours, their country, and the Deity; a heaven awaited the good and a hell the vicious, while a second probation was afforded to the less guilty; there was a judgment day, when the hearts of men were weighed in the scales of Justice and Truth. Monogamy was the strict rule; not even the kings in the archaic period were allowed to have more than one wife.* The wife's rights of separate

* Polygamy makes its appearance in the eighteenth dynasty, and continues on after that.

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property and her dower were protected by law; she could buy, sell, and trade on her own account; in case of divorce, her dowry was to be repaid to her with interest at a high rate. The marriage ceremony embraced an oath not to contract any other matrimonial alliance. The wife's status was as high, if not higher, in the earliest days of Egypt, than it is now in the most civilised nations of Europe or America. In fact, we now know that inheritance amongst the ancient Egyptians descended through the female line, so that the eldest daughter of a king, however many brothers she might have older than herself, was heir to the throne, and her husband, who might have no royal blood in him at all, became king. Slavery was permitted, but the slaves were treated with the greatest humanity. In the negative confession rehearsed before Osiris at the judgment, the soul of the deceased is made to declare, "I have not incriminated the slave to his master." There was also a clause in the commandments which protected the labouring man against the exaction of more than his day's labour. When we consider the high ideal of the Egyptians as proved by their portrayals of a just life, the principles they laid down as the basis of ethics, the elevation of women among them, their humanity in war, we must admit that their moral place ranks very high among the nations of antiquity. Enough has been said about ancient Egyptian life to show that we need not think, with all our Christian ethics, that in all respects they were far behind us. To guide their spiritual life they had a beautiful and comprehensive code of morals, many of the precepts of which are to be found word for word in the Bible teaching. The story of the murder of Osiris, their good god, by the Evil Principle, and the coming of Horus (the son of Osiris) to the world to take vengeance on the Evil Principle for the death of his father, wonderfully forestalls in many particulars the Christian beliefs that form the basis of the Christian religion.

In daily life we find that they attained a proficiency in art that astounds us. They were the first mathematicians, and those Greeks whom we regard as the fathers of mathematics, were simply pupils of Egypt. They were the first land surveyors. They were the first astronomers, calculating eclipses and watching the periods of planets, constellations, and special stars. They knew about the rotundity of the earth, which is not yet admitted by the conquerors of this ancient race. They had dials and clepsydras for measuring short periods of time, while in the heavens they saw a perfect piece of clockwork, which they discerned and utilised as early, and probably much earlier than the twelfth dynasty. By this time they had a lunar year of 360 days, a sidereal year of 365¼ days, and a grand Sothic cycle of 1,460 years. They were the first agriculturists, raising the various cereals, cattle, horses, sheep, &c. Osiris, their great and good god, was the teacher of agriculture to the different nations of the earth. They thus held this form of labour in high repute,

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and the bull and the cow, so intimately connected with agriculture, were looked upon as Incarnations of Osiris and Isis. They manufactured linen of so fine a quality that a single thread of a garment was composed of 365 minor threads. They worked in gold and silver, with copper, bronze, and iron, and they tempered iron to the hardness of steel. They also worked in stone with the precious-stone saw and drill. In 1837, when Mr. Perring was working for Colonel Vyse at the Great Pyramid, he came upon a fragment of an iron tool that had been broken off between two stones in the structure of the pyramid, and had remained there these five or six thousand years till Perring's workmen discovered it. It was presented by Colonel Vyse to the British Museum, and there "it has been so well taken care of that no one has been privileged to see it since." In the tombs of the fourth dynasty butchers and sacrificial priests are to be seen using stone knives. They used an intense, smokeless, and probably heatless, light while sculpturing and painting their tombs in the dark recesses of the native rock—a light that has not yet been classified, but probably it was produced by a combination of chemicals of an inflammatory and light-giving nature, which burned like an electric light, without waste, and therefore without smoke. They were the first physicians, surgeons, and midwives. Some of their earliest kings were physicians and surgeons, and wrote treatises on these subjects. Contemporary history tells us of the proficiency of the Hebrew midwives during the Israelitish sojourn in Egypt under the Ramessides, and no doubt they were the mere pupils of the Egyptian midwives, who had classical works on midwifery in the twelfth dynasty (2400 B.C.), one of which Mr. W. Flinders Petrie has been fortunate in finding, and which, no doubt, will in due time be published for the benefit of all whom it may concern. In medicine and surgery they had reached such a degree of perfection that several hundred years B.C. the operation for the removal of cataract from the eye was performed amongst them, one of the most delicate and difficult feats of surgery, only attempted by us in the most recent times. The medical papyrus of Berlin states that it was discovered rolled up in a case under the feet of an Anubis in the town of Sekhem in the days of King Teta, after whose death it was transmitted to King Sent, and was then restored to the feet of the statue. King Sent was a Pharaoh of the second dynasty who flourished about 4500 B.C., and the papyrus was old in his day. This papyrus is a medical treatise. There are in it no incantations or charms, but it deals in reasonable remedies, draughts, ointments, and injections. The later medical papyri contain a great deal of magic and incantations. They were the first chemists, and, in fact, the word chemistry is supposed to be derived from the hieroglyphic name for Egypt, viz., "Khemi," which means *black*, no doubt as applied to the black soil of the country. The physicians' prescriptions that have been handed down to us in papyri show that there must have been apothecaries who knew how to compound

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and dispense drugs. They manufactured glass and all kinds of pottery. In the twelfth-dynasty tombs at Benihassan you can see pictures representing glass-blowing, &c. They made boats out of the papyrus plant long before they constructed them of wood. They were the first musicians, and had guitars, single and double pipes, cymbals, drums, lyres, harps, flutes, sistrums, and castanets. We are only beginning to find out the meaning of the well-known quotation, "Learned in all the wisdom of the Egyptians."

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*December* 9, 1890.—James Moir, M.A., in the chair (in the absence of the President). On the recommendation of the Council, and on the motion of the Chairman, H. E. James A. S. Grant Bey, M.A., M.D., LL.D., Cairo, was elected an Honorary Member of the Society.

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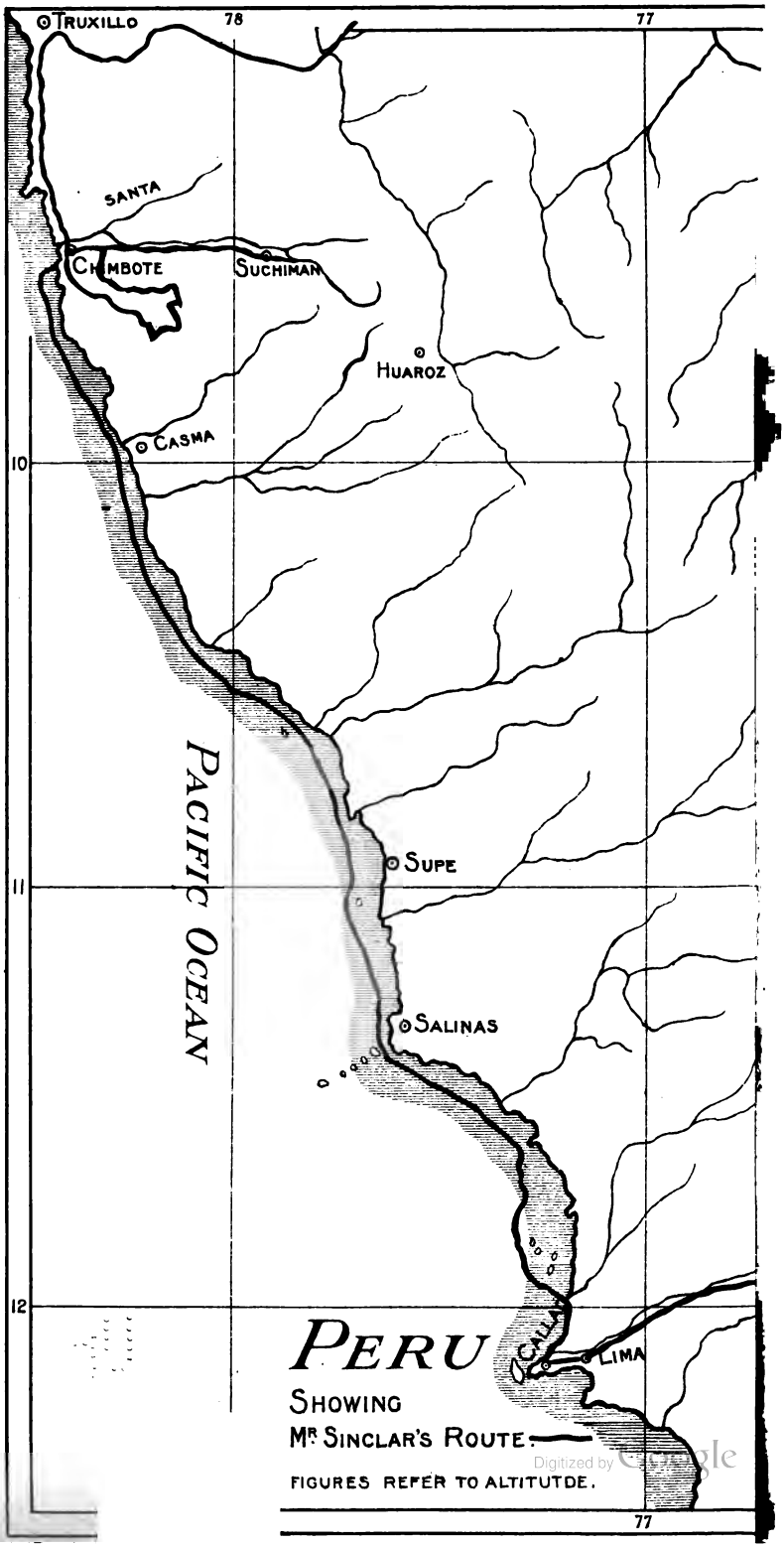


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*May* 3, 1892.—JAMES MOIR, LL.D., *President, in the Chair.*

Mr. ARTHUR SINCLAIR, late of Ceylon, read a paper entitled, "Travels in Peru; or a Month amongst the Chunchos"—Illustrated by Oxy-Hydrogen Lantern Slides.

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## *Travels in Peru; or a Month amongst the Chunchos.*

By ARTHUR SINCLAIR, late of Ceylon.

There are three routes available from Europe to Peru. The most direct—after crossing the Atlantic—being up the Amazon; the most comfortable, by the Straits of Magellan; and the quickest, *via* the Isthmus of Panama. To save time, let us choose the last. One advantage of this route is, that it gives us a peep, in passing, at the islands of Barbadoes and Jamaica—the two oldest and most valuable of our West Indian possessions. Barbadoes is only 166 square miles in extent, but every acre is cultivated, chiefly in sugar-cane, and, altogether, the best cultivated little tropical colony I have come across. Densely populated, chiefly negroes, who look much happier and better off than the "poor whites." The English language only is spoken—spoken with a terrific fluency and an unmistakable Irish brogue. Readers of Carlyle's "Cromwell" will not be at a loss to account for this, remembering how Oliver sent so many of his refractory Irishmen there. "Terrible Protector!" exclaims the Sage, "can take your estate, your head off if he likes. He dislikes shedding blood, but is very apt to Barbadoes an unruly man; has sent, and sends up in hundreds to Barbadoes, so that we have made an active verb of it—Barbadoes you."

Again, in one of the Protector's characteristic epistles, we read that 1000 Irish girls were sent, "and as to the rogue and vagabond species in Scotland, we can help you at any time to a few hundreds of these." An Irish fellow-passenger hearing his own language so well accented, enquired of a Barbadoes negro working at Jamaica, "How long have you been here?" "Noine years," was the reply. "Be jabbers," said my friend, "if you 've got black like that in noine years, it 's high time I were off home again."

Jamaica has a magnificent harbour from which superb views of the grand old blue mountains are to be seen. Kingston, the capital,

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is spread out on the rich flat land lying between; sweltering under a blazing sun, from which even the laughing negro is glad to take shelter below the umbrageous trees. The climate and vegetation strikingly remind one of Ceylon, but alas! the abandoned hillsides testify to the greater labour difficulties of the poor planter here. A few days more and we heave in sight of the Isthmus of Panama. Generally speaking, the first land seen is Porto Bella in the Gulf of Darien, which reminds us of a chapter in Scottish history we would fain forget if we could. Here, about 200 years ago, some of the very cream of our countrymen were landed and sacrificed to the contemptible jealousies of our neighbours. Terrible was the loss to so poor a country, and heroic was the struggle, but it was of no avail against such fearful odds, and now, the only really useful lesson we can learn from the disaster is, that even Scotchmen are not equal to manual labour in the tropics; and, whatever inducements selfish individuals or soulless companies may hold out, it may be accepted as a general rule that Europeans are unfitted for field labour in purely tropical temperatures. It may be all very well for overseers, who live in luxurious bungalows and view their fields from under the shade of ample umbrellas, but it means death to the exposed pick-and-shovel man. No; Europeans, or men from temperate regions, do not readily acclimatise to the tropics, and for that matter, as far as my experience goes, the same rule holds good in the vegetable kingdom; for, although nearly all our most cherished plants come to us from near the Equator, we cannot, as a rule, induce our native trees to take root there.

Colon, our first landing port, apart from its luxurious vegetation, is a very wretched spot. It is only in a Spanish Republic where the existence of such a pestiferous place is possible. It is not merely the disreputable appearance of its degenerate people, nor the frequent squabbles dignified by the name of revolutions we have to fear, but the ever present *filth*, which is much more dangerous to life. Fortunately, a fire has recently burned down and purified a large portion of the town of Colon, rendering it for a time, less dangerous to sojourners. A statue to Columbus stands at the entrance of that now abandoned project—the canal. Poor Lesseps! would that he had been content with his success at Suez! This gigantic failure —a failure so tremendous that the very ruins may be said to be stupendous—must, for many years to come, form a melancholy subject of comment as passengers ride along the margin of the unsightly

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ditch. What a sad sacrifice of human life and carefully accumulated wealth this unfinished ditch and surrounding *debris* represent! There is little hope of the work ever being finished by Frenchmen now; indeed, we are told that, by agreement, the Columbian Republic can next year lay claim to the works as they stand, and mean to do so.

The railway on which we cross the Isthmus belongs to an American company, and Jonathan knows well how to make the most of it. No such exorbitant charges would be tolerated in any civilised country, and beyond the mere cost of ticket and transport of baggage the amount of palm-oil one has to expend on officials in order to get along at all is simply iniquitous. "Ah!" says Jonathan, "but you little know how costly this railway has been. Every sleeper it rests upon cost a life." As if those who paid down those lives or suffered through it got the profit! It takes about four hours to get over the 45 miles of comparatively flat land dividing the Pacific and Atlantic Oceans, and such is the condition of the first-class American carriages that a shower of rain renders the use of an umbrella absolutely necessary, even while seated in them.

The outlook from the carriage windows is not exactly inviting. Deserted villages, palatial bungalows abandoned, ponderous machines rusting among the malarious jungle, flit past in slow succession, while at the various stations a few poor ghostly whites and hundreds of dark and hungry-looking old canal labourers scramble to make a penny out of the sympathetic passengers. The luxuriant vegetation is the only relief to the eye, and it is impossible to believe that these beautiful shrubs, trees, and creepers could not be turned to some useful purpose. There is not an acre of real cultivation; we simply pass between living walls of natural greenery. The beautiful banana leaf, the graceful bamboo, and curious mangrove, the glossy mangoe tree and feathery palms, all mixed up with ferns, orchids, and creeping flowers of every possible form and hue, display a truly tropical scene. By those who have never left a temperate region, the astonishing variety of plants near to the Equator can scarcely be realised.

A more beautiful situation for a city than that of Panama would be difficult to find in the world. The noble and ever tranquil bay is dotted over with the most exquisitely arranged islands, from one to a hundred and fifty acres in extent, and closely clothed with evergreen trees, glossy shrubs, and flowering creepers, down to the water's edge. The little hills around the city are covered with rich and



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varied vegetation, while the valleys teem with giant trees, amongst the most useful and beautiful in the vegetable kingdom.

Of the city itself I have little to say. There is the usual plethora of Roman Catholic churches and American bars, while Lesseps has added one substantial building in the shape of a handsome range of now, alas! tenantless offices. But the streets are atrociously rough, and the sanitary condition indescribably bad. This, I feel sure, has more to do with the unhealthiness of the place than anything else. The climate is humid and warm, but so are many places in India and elsewhere in the tropics; and it would be absurd to suppose that a mere strip of land lying between the Pacific and the Atlantic would continue to be specially unhealthy if cleared, drained, and cultivated like any other civilised country. As it is at present, the cemeteries tell their own sad tale—an ample acreage, but filled to overflowing. On the one hand, as we drive along into the suburbs, lie the remains of the common herd, little wooden crosses being deemed sufficient to mark their resting-place. On the other side, a smaller enclosure evidently contains mould of a more select kind, the marble and Aberdeen granite headstones testifying to the goodness, greatness, or prowess of the departed.

Historically, Panama is chiefly interesting to us as the quondam headquarters of the Spaniards during the years they were spying out with envious eyes that great land of promise, Peru. 'Twas from here, 360 years ago, that the bastard, but ambitious, swineherd Pizarro set sail with his cruel and greedy adventurers. Let us follow him, afar off as it is. We can imagine with what impatience the months and years were spent in sailing to and fro while reconnoitring his prey; but it seems ridiculous to either credit or altogether blame Pizarro for the so-called conquest of Peru: a man who could not read a line in his own mother tongue, whose signature was a clumsy cross, whose only redeeming quality was a certain amount of animal courage, was not the man to carry out great schemes. The inception, indeed, was that of a priest who furnished the funds for the expedition, and the real instigator of the treacherous murder of the too confiding Inca monarch was the wily monk who accompanied the gang of butchers. The hardships, too, and terrific tempests encountered in the Pacific must have been rather overrated by Prescott, as the Pacific does not so frequently belie its name as that eminent historian would lead us to suppose. My own experience, at least, during several voyages at the same season of the

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year as Pizarro sailed, was in seas the very reverse of tempestuous: the temperature was simply perfection, the air a positive luxury to breathe after the moist atmosphere of the Caribbean Sea, while old salts whom I consulted on the subject declared that this had been their general experience during the past thirty years. Pizarro took six weeks to accomplish the distance we covered comfortably in one afternoon, namely, to Point Pinas, where he turned into the river *Biru*, which some suppose to be the origin of the name *Peru*. After sailing up this stream for a few miles he came to anchor, and proceeded to explore the surrounding swamps. There we must leave him for a time. Pity it was he ever came out of them!

Peru in Pizarro's time, the magnificent, prosperous, and wisely-governed land of the ancient Inca, extended along the coast for 3,000 miles, including what is now Columbia, Ecuador, Chili, and Bolivia. Since then it has been considerably curtailed, divided, and subdivided into little Republics, each more corrupt than its neighbour.

Now-a-days our first port of call from Panama is Guayaquil, the commercial capital of Ecuador, sixty miles inland, beautifully situated on the Guay, the finest river flowing into the Pacific. The island of Puna, at the entrance, may be noted as the frequent rendezvous of Pizarro and his crew. Ecuador is a rich and lovely country, owned, however, by one of the rottenest little Republics in South America, and this is saying a great deal.

The descendants of Europeans living near the Equator seem to degenerate more rapidly and thoroughly than they do at a safe distance. The descendant of the Spaniard here is a very different type from the Chilian, for instance, who, with all his faults, is a brave, active, and industrious man. I would recommend the traveller who wishes to retain a pleasant recollection of Guayaquil not to land, the city looks so very much better from a distance. But the country around is a vegetable paradise, such as Britain, with all her tropical colonies, can scarcely lay claim to, supplying spontaneously the very finest varieties of tropical products and fruits, such as cocoa, coffee, pine-apple, plantain, and chirimoya, &c., the latter beyond all comparison the most delicious fruit I ever tasted, so unlike anything else that it cannot well be described. Mr. Clements Markham, the illustrious traveller, speaks of it as "spiritualised strawberries," but I do not know that this description conveys very much. The tree, usually about 15 to 20 feet high, is a native of Peru, and belongs to

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the natural order called Anonad, extensively represented in India and Ceylon by a relative known as the *Sour sop*, a rather refreshing fruit in a hot climate, but coarse compared with this "master work of nature."

Of commercial products cocoa is the chief, and yet there cannot be said to be any cultivation. "At what distance apart do you plant your cacoa trees?" I asked an old planter I chanced to meet. "Plant!" he repeated reflectively; "why, the donkeys plant all our cacoa." "The donkeys!" I exclaimed, with unfeigned surprise. "Yes, yes," he hastened to explain, "the human-being-like animal you English call donkeys." It dawned upon me that the man meant "monkeys." And it turned out that, being fond of the fruit, they occasionally made inroads upon the ripe cocoa, which they carried to a distance, enjoying the luscious pulp, but dropping the seeds, and thus extending the plantation.

In scenery I do not know that we have anything, in what we call our old world, to quite compare with the bold surroundings of the Guay. What can we show equal to Chimborazo, when the curtain of mist is obligingly withdrawn, exhibiting a perfect pyramid, about 21,000 feet in height, with its foundation in everlasting summer, and its pure white summit in eternal winter, or the still bolder and more rugged Peruvian Andes to the south, like "mountains piled on mountains to the skies?" The first impressions such scenes have upon ordinary mortals are so overwhelming, that the most, or the least, we can do is to calmly sit down and exclaim, with the Turk—"God is great."

From Guayaquil, Payta, our next port of call, and first introduction to modern Peru, is reached in one day, and never was a more complete transformation seen. Last night we were sailing down a noble river, lined on either side by banks of the densest vegetation; to-day not a particle of vegetable life is to be seen as far as the eye can reach. From Aden to India the transition is equally remarkable, but that takes a week to accomplish; here, in a few hours, the scene changes from moist luxuriance to an arid waste, from a damp, relaxing climate to a dry bracing air, from dark chocolate soil to light driven sand. "And this is a fair sample of what you will see for the next 2,000 miles along this forsaken coast," says our ship captain.

The fact is, we have passed the dividing line which separates the rainy from the rainless locality, and let me say at once I prefer the

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latter. Refreshing as the rain-drops are to the thirsty soil and flagging plants, and taught as we long have been to look upon the gentle rains as blessings falling upon the just and unjust alike, still, it is not only found possible to live and enjoy good health in an absolutely rainless country, but the soil can be rendered even more productive, as will be seen by and by, where the agriculturist does not directly depend upon these fitful supplies of moisture from the clouds.

It is, perhaps, not strictly correct to speak of Payta as an absolutely rainless district, as occasionally they do get the tail-end of a shower here "about once in nine years," said the local weather clerk, and then there is a rush of vegetation marvellous to look upon, plants growing where seeds were never known to be cast, and particularly one was described to me belonging to the cucumber family, but containing a sponge and soap!—a formidable rival to Pears—of which the inhabitants here stand much in need. But the most valuable plant of the interior of this locality—for nothing is to be seen on the coast—is doubtless the perennial cotton-tree, a very superior variety, surpassing anything of the kind growing in North America. No doubt with ordinary industry and judicious irrigation the cultivation of this valuable product might be greatly extended.

The next port of call to which I would like to introduce the reader is Salaverry, about 300 miles south from Payta, and, as seen from the sea, an equally bleak and altogether unprotected coast. To land here without being drenched is next to impossible. The poor ricketty place itself is chiefly notorious for the inquisitiveness of the not overworked custom house officials, who will examine the toe of every stocking, and even peer into the tins of Swiss milk, purchased perchance at Payta, and will charge duty thereon. And while you haggle over the exorbitant demands, ten to one you lose the only daily train by which you hoped to reach Truxillo. It is better perhaps, under the circumstances, to calmly submit to a little extortion than run the risk of being left in the lurch in such a place.

Truxillo lies about nine miles inland, was founded in 1535 by, and named after the birthplace of, Pizarro. The city is a sort of third-rate Lima, containing about 15,000 inhabitants, many great and garish-looking churches, and a few more or less empty hotels, all slowly falling into decay. On the roughly paved streets we now and again meet a decaying sample of the dignified Spaniard; while

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the only busy man in the place, the Chinese cook, to wit, comes to his door for a breath of fresh air, or to look for a fresh customer. In the Plaza—which corresponds to our public square—young Peru may be seen loafing against the rail of the little central garden, smoking cigarettes, and looking languidly at the few brilliant crotons, Poinsettia, and Vincas which surround the fountain.

The priests, like great black beetles, creep stealthily along in twos and threes, entering or emerging from the always open churches, from which we can hear what is intended for sweet seductive notes of music. But we must push on. A run of 20 miles brings us to the centre of one of the most flourishing groups of sugar estates in Peru. The Casa Granda estate, which I specially visited, is an admirably managed property of some thousands of acres; more luxuriant cane, or cane richer in saccharine juice, could scarcely be found, and yet this is an absolutely rainless district. Men live and die here without having once seen a shower of rain, and wonder to hear of the haphazard agriculturists of other lands, who simply plant or sow their seeds and wait for the fitful clouds to water them. Here the chief work and art of cultivation consists in applying water when absolutely necessary, and withdrawing it the moment it would prove injurious; and, unquestionably, a richer cane is raised by this means than is possible in the rainy region of the tropics. The labour here is exclusively Chinese, experts at this particular work, and I doubt if equally good results could be obtained by any other class of labourers. The maturing of the cane is so managed that there is a daily supply sufficient to produce 500 cwts. of the finest sugar. The machinery is of the most modern description, and the whole works and yards are thoroughly lighted up by electricity. There are several other equally well-managed estates in the same valley, and the cultivation might well be indefinitely extended for hundreds of miles. It is merely a question of capital and suitable labour. But we must now resume our voyage for about 100 miles further along the coast, our next port of call being Chimbote, at the mouth of the river Santa, the largest Peruvian river on the western side of the Andes. This was the furthest point reached by Pizarro on his first memorable voyage of discovery. He was satisfied with what he had seen, that the country was not only worth the conquest, but rich beyond his wildest dreams, and from here he was induced to return to tell the story of his adventures to his avaricious masters. But, however prosperous the district of Santa may have then been,

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it is now a poor, abandoned place, and yet, with such an ample supply of water, it might vie with the richest spots on the coast of Peru in productiveness.

As it is, it is chiefly interesting to the antiquarian. The remains of Inca roads rival anything the Romans ever built in Britain, and there are also the marvellous aqueducts, and more particularly the hauchas, or mounds, scattered over the country at irregular intervals. When opened these hauchas prove to be burial-places; and beside the bones curious pottery is often found, chiefly water bottles, of which I secured a number of specimens. The chief enterprise of the place consists in despoiling the graves of the ancient Incas. The bay of Chimbote itself is remarkable as the best sheltered bay on the coast of Peru, protected by a semi-circle of rocky islands which, though here lacking the vegetation which adorns the islands around the Bay of Panama, supply the means of vegetation to many an unfertile spot on the earth's surface. Sea-lions, which startled us with their roar as we were coming ashore, and myriads of seals, frequent these islands, daily basking in the sun. It is *their* refuse, and not the refuse of birds, as generally supposed, that forms the bulk of Peruvian guano.

WATER BOTTLES.

We make no further calls till we reach Callao, the chief commercial port of Peru, where, however, in the most uncommercial-like way we were kept waiting two hours for the captain of the port, who was supposed to be at a cock fight. Our own dignified old English salt is a Christian gentleman and not a swearing man, but as he nervously paced the bridge he looked so uncommonly like a man whom an "aith" would relieve that I would not have ventured near him had he not beckoned on me. "You are now leaving us," he brusquely said, "and will be coming in contact with Peruvian

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officials; my advice is, never believe one word they say, even supposing they should swear to it on a cartload of Bibles." A warning, I regret to remark, which proved not altogether unnecessary.

Callao has no special interest for us, with its quays and wharfs, ugly warehouses, and polyglot population; it is like any other seaport town, and as Lima is only seven miles distant we prefer to pass on at once.

And now, when in the capital, I am afraid I shall disappoint you, for I am not fond of cities; my heart longs always for the quiet country beyond. A simple man, my tastes lie among the simple people on the mountains, or in culling the common weeds by the wayside. I cannot, therefore, enter here into any detailed description of Lima, which at one time, we are told, was considered the gem of South America, and though now somewhat sullied, is still beautiful; picturesquely situated, with a climate almost perfect, the sun rarely scorching, and the rains never bedraggling the inhabitants.

The two chief characteristics of the city are perhaps its magnificent churches, more than seventy in number, and its great bull ring, *Plaza de Acho*, where over ten thousand weekly witness and applaud the cowardly slaughter of poor helpless animals. From the churches we might, perhaps, with advantage take one little lesson, they are always open from 4 a.m. till 10 or 11 p.m., while here, in Scotland, we build, by a supreme effort, substantial kirks and then lock them up for 312 days in the year. Foreigners laugh at this, and I do think there are few greater absurdities to be seen in any other part of the world.

The population of Lima may be about 130,000, but no one knows exactly, as they have not succeeded in taking a census for many years. The last attempt showed something like eight ladies to every man, and the ladies are as famous for their beauty and energy as the men are for their feebleness. The marriages seem only to number about 83 per annum, or less than 1 per 1,000, not a very prosperous sign.

Now for the hills. By rail to Chicla, 87 miles, thence on mule-back. This railway, it will be remembered, is, without any exception, the highest in the world, and the engineering the most audacious. "We know of no difficulties," the consulting engineer said to me; "we would hang the rails from balloons if necessary!"

When rather more than half-way to Chicla we reach Matucana station, at an altitude of 7,788 feet above sea level, and here we

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resolved to stop for two days in order to get accustomed to the rarified air. But we were not idle. Procuring mules, we proceeded to ascend the surrounding mountains. Matucana may be described as a village of 250 inhabitants, situated at the bottom of a basin only a few hundred yards wide, but widening out to 50 miles at the upper rim, which is covered with snow. The hills rise at an angle of from 45 degrees to 75 degrees, and the so-called roads are really a terror to think of. In the distance the mountains of Peru, or the Andes, look as bleak and barren as Aden, and most globe trotters who take a passing glimpse at them say they are so; but such is not the case. I have not yet seen an acre upon which the botanist might not revel, and but for the fact that I had to watch with constant dread the feet of my mule, I have never spent a more intensely interesting afternoon than I did during this memorable ride. Up, up, we went, zig-zagging on paths often not more than 18 inches wide, and sloping over chasms that made one blind to look down. Speak o' "loupin' owre a linn"! here is a chance for any love-sick Duncan!

But, oh! the flowers, the sweet flowers! who could pass these unheeded? So many old friends, too, in all the glory of their own native home, to welcome us, and indicate the altitude more correctly than any of our aneroids. First comes the heliotrope, scenting the air with its massive blue clusters. So different from the straggling exotic in Britain or the leafy, lanky, plant in India. This grows in the greatest perfection and profusion to about 8,000 feet above sea level; then come miles of bright yellow calceolarias, intermixed so prettily with brilliant red and blue salvias, every vacancy apparently filled up with lovely little lobelias, curious cupheas, and creeping solanums, while our old enemy in India, the ageratum, everywhere intruded its white thrummy head. Suddenly all is changed, and hundreds of acres of the most beautiful blue lupine covers the ground; this grows up to 14,000 feet, and then gives way for the anemone, sedum, and dandelion, which dispute with the snow the limit of 15,000. We were contented, however, on this occasion to reach about 13,000 feet, and, "sair forfochen" as we were, eagerly accepted the invitation of a Cholo Indian to enter his hut; and here let me say that my ignorant prejudices against the Indian changed at once as I looked upon this evidently happy and most hospitable family. The best they had was placed before us, and one sweet lassie, seeing we were fond of flowers, disappeared into a tidy little garden and brought us such bouquets as I had rarely seen. Imagine

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real red roses, stock, fuchsias, sweet peas, gladiola, &c., mixed with sprigs of fennel! I could not help contrasting this delightful reception with what I had sometimes seen amongst more pretentious people.

We next halted at Chicla: altitude, 12,215 feet above sea level. A dreary enough spot, where passengers not infrequently get their first experience of *sorroche*, or mountain sickness, caused by the rarified air, the disagreeable symptoms being headache, vomiting, and bleeding at the ears and nose, the only cure being a greater atmospheric presssure. Horses and mules from the low country frequently drop down dead here from failure of the heart's action.

Leaving Chicla, the real tug of war begins; the crest of the Cordilleras has to be encountered and crossed. A wretched road, made worse by the *debris* from the railway, which, for the first fifteen miles, we saw being constructed still far above us, the navvies hung over the cliffs by ropes, looking like venturesome apes. Higher and still higher goes this extraordinary zig-zagging railway, boring into the bowels of the mountains and emerging again at least a dozen times before it takes its final plunge for the eastern side of the Andes. Meanwhile, we continue our scramble to the top of the ridge, 17,000 feet above sea level. I have no desire to magnify the difficulties and dangers of this tedious ride. The great question is—What do we see when we get there? This I cannot well magnify. It is not a case of merely going up one side of a range, like the Grampians, and down the other, but there is now before us a tableland as far as the best eyes can reach and ten times further, with its hills and dales, lochs and rivers, more than equal in extent to Great Britain itself, at an average height of about 13,000 feet above sea level.

Viewing this plateau from here, we have spread out before us a region unlike anything we have ever before seen, far above the rest of the world, upon the cares and troubles of which it looks down with calm, if cold, indifference, sharing none of its alarms, and seldom indeed disturbed by the insane political broils of the lower regions. The clear sky above, the occasional clouds chasing each other up from the valley of the Amazon, only to be dissipated on the snowy peaks which they cannot possibly pass, above all the glorious sun, so welcome a benefactor here, that we can no longer marvel that it was the great object of worship by the Inca. And all this bleak but most interesting region has to be traversed before beginning our descent into the promised land beyond, the real basin

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of the great Amazon, for which we are now bound, a region which even the Inca in the plenitude of his power never subdued, and, we are assured, no living Peruvian has penetrated. It would be tedious were I to describe too minutely the ride of the next few days over the great grassy puna. Here is the home of the gentle llama, a sort of link between the camel and the sheep, the wool of which is so much appreciated; the paco also, which supplies the world with alpaca; and their more timid relative, the vicuna, with wool still more valuable. Here and there we come upon the remains of roads and crumbling ruins, indicating a civilisation which may date back thousands of years, even before the advent of the Inca.

Of human inhabitants there are now comparatively few, but such as there are, are interesting specimens of sturdy little Highlanders. The women, particularly, are admirable examples of a hardy, industrious race. No finer female peasantry in the world, I should say. The chief town of this region is Tarma, about 200 miles inland, altitude 9,800 feet, population about 8,000. We stayed for some days here, greatly enjoying its splendid climate—a paradise for consumptive patients. Excellent wheat and barley are grown here. This is also the home of the potato, it having been cultivated here as carefully as it now is in Europe, perhaps hundreds of years before America was discovered by Europeans. "Papa" they are still called, being the old Inca name of the tuber; and the quality is fully equal to the best we have produced here; moreover, they have some varieties better than any of ours, one of which I hope to introduce to Scotland.

It was in the end of July, 1891, that one fine morning (every morning is fine here), we managed to muster our retinue, and make a fair start for the famous low country. The peculiar vegetation on the steep mountain slopes—more grotesque than beautiful—betokens a comparatively dry climate all the year round. Such expanses of gigantic cacti and broad-leaved agave we had not before seen, and prior to the age of mineral dyes, fortunes might have been made here in cochineal; as they still might be, by any enterprising agriculturist who would devote his attention to fibres.

The resplendent flowers of the cacti were just closing as the morning sunbeams fell across their brilliant petals, and we, too, were soon reminded that we were in the tropics, and were glad to hug closely the little belt of trees which shaded the lower side of the winding path.

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Here a watercourse carries grateful moisture to the Alfalfa (Lucerne) fields below. The banks of this little watercourse are a delightful study. I can scarcely express the pleasure I had in recognising so many old familiar friends. The trees were chiefly alder and buddlea; the former, our "ain arn," the latter, with its silvery leaf, a well-known native of Peru. Here also are veritable bourtree bushes; there a line of the beautiful Peruvian willow named after the illustrious Humboldt. Nor can we pass without recognition the sweet little flowers that clothe the margin of the rippling stream. The yellow calceolaria, ever ready to assert its nativity, blended with the blue salvia and ageratums, various vincas, passion flowers, solanum, and thunbergias, all so familiar and all so much at home here, gave a peculiar charm to this morning's ride.

We halted for breakfast at Acobamba, only six miles from Tarma, from which we had been rather late in starting. Acobamba is a beautifully situated but decaying hamlet, with about 1,500 rather seedy-looking inhabitants, where not long ago there had been more than double that number; and evidently destined before long to become another deserted "Sweet Auburn," of which this grand Spanish colony furnishes so many sad examples. Here already

"Half the business of destruction 's done."

Every second house is in ruins, and what had doubtless once been trimly kept gardens,

"And still where many a garden flower grows wild,"

are now scenes of desolation. Not without its interest, however, and as one curious in such matters, I accomplished the feat of scrambling through the straggling fence "unprofitably gay," and I dare confess explored the wild spot with more real pleasure than I would look upon well-clipped bushes. Beneath a jungle of real red roses were violets scenting the morning air, and many other exotics as far from home as myself, including the gaudy geranium, southernwood, and costmary—bachelors' buttons—

"The golden rod, and tansy running high,
That o'er the fence top smiles on passers by."

How they came there is a question we leave to others. Buxom women squat under the trees, industriously weaving, on the most primitive of looms, the cloth of which their husbands' ponchos and trousers are made, while their lords, such as they are, may be seen lounging in crowds round the drinking bars on the Plaza. The tipple

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here is appropriately called "chicha," made from fermented maize, and similar to the ale from which raw grain whisky is distilled. By no means a very deadly poison, "for," said our host, "these people live to a great age. 110 to 120 years being not unusual"—but then I daresay there is no Dr. Cramond* in Acobamba.

The *padre*, we are told, not unfrequently joins his flock in their drunken orgies; indeed, the so-called Church festivals seem to have degenerated into blasphemous ribaldry, enough to make one shudder. It is the boast of the proud Spaniard that he has at least given the Peruvians a *language* and a *religion*. The language may be all right, but we cannot congratulate them upon their religion. and who will dare to say that it would not have been better for them had they still been speaking their native *quichua*, and reverently saluting the glorious rising sun as they wended their way to work in their well-tilled fields as in the olden time when industry formed part of their religion.

I have perhaps lingered rather longer over Acobamba than the reader could have wished, but it is the last remnant of a decaying village I shall at present have to notice, for with the exception of a half-deserted hamlet called Palca, a few miles further on, we see little more of the homes of the mountain Cholos during our present journey. The gorge, along which our road threads its way, now gradually narrows, a gurgling little torrent runs at the bottom, and the presence of half-hardy little shrubs, growing without irrigation, shows that the tail-end of many a tropical shower must now reach this limit. Amongst the native plants here, may be noted the beautiful trailing rubus and the monnina: the bark of the root of this plant is used for soap, and the Peruvian ladies archly ascribe the beauty of their hair to the use of it. Amongst other plants there are many brilliant billbergias, nightshades, &c. We were now 30 miles from Tarma. The ravine gets narrower and more dismal looking, and, as the sun has already sunk behind the mountains, we decided to halt for the night at a place called Huacapistana, where there is a very miserable hovel in which benighted travellers are invited to rest; but such were the surroundings, and so strange were the bed-fellows, that of that weary night I have still rather more than a hazy recollection of lying watching my companion trying to sleep with a loaded revolver in his hand. But nothing happened, and next morning we were off betimes. Steeper and steeper became the descent. We preferred "shank's mare" to the already tired mules.

* A famous detector of would-be centenarians in the North.

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Narrower and narrower became the gorge until it culminated in two "tall cliffs which lift their awful form" many hundred feet high, leaving only room for the now raging river, and a very narrow path between. Once through this, the valley opens out, and the vegetation assumes a more luxuriant aspect. Our aneroids indicate an altitude of 2,650 feet, and the moist steamy heat tells us that we are truly in the tropics. The district is called Chanchamayo, where for 20 years a number of Frenchmen and Italians have been trying their hand at coffee, indigo, and sugar-cane growing, it must be confessed, with very indifferent success, though, certes,

. . . . . "If vain their toil,
They ought to blame the culture, not the soil."

COFFEE PLANT.

But these men have been sent out without much previous training. "That is a splendid specimen of cinchona," we said to a planter, pointing to a tree near his bungalow. "Cinchona!" he exclaimed, in real amazement, "I have been 15 years here, and never knew I had been cutting down and burning cinchona trees." In Chanchamayo we learned that the Convent of San Luis, on the borders of the Chuncho country, was about 25 miles distant. We had letters of introduction to the chief priest there, and after resting a day in the house of a hospitable Frenchman, eagerly pushed onwards. The trip was now getting decidedly interesting; the scenery and vegetation improved as we proceeded, while the prospect of meeting real Franciscan monks was by no means distasteful; for although I have no great leaning towards the Spanish priesthood, still I honestly tried to go forward unprejudiced, thinking only of the monks of old,

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and the good they did in their day. But this convent was a revelation to us. We had never seen anything quite so filthy and suspicious looking before, and would have gladly escaped within an hour; indeed, did so, and began erecting our tent at a safe distance; but were implored not to insult the reverend fathers by refusing to accept their hospitality, an infliction which we now bore patiently for several days. We were introduced to a number of Chunchos. Miserable specimens they were, and more familiar than pleasant, who had left their country for their country's good. Just as a herd of elephants in Ceylon occasionally expel the incorrigible rogues, so the Chunchos, it seems, have their outcasts, male and female, who make a parley-ground of this Convent—fit converts to this specious mockery. After sundry, rather meaningless. postponements, we at length got a start. In Peru every good work is to be done to-morrow: "manaña" is in everybody's mouth on all occasions. I often wonder what the degenerate Spaniard will do when there is no longer a "manaña." Two priests who professed to know the country volunteered to accompany us. The start was made on a Saturday morning, and as the *padres* pretended that they were prepared to hold service in a village next day, we flattered ourselves that we would still have another Sunday in something like civilization; but we have not yet seen the village, much less the service!

Peruvians are not famous as travellers. As a rule, they know very little of their country. They have their Geographical Society, forsooth! and possess maps, more or less inaccurate, compiled by industrious foreigners; but the richest portion of the interior is practically a *terra incognito* to them. "Have you ever been to the interior?" I asked a leading authority in Lima. "No, my dear sir," was the naïve reply; "I never but once rode twenty miles, and that only because the Chilians were at my back."

But the worst weakness of the Hispano-Peruvian race is their utter inability to tell truthfully the little they do know. David said in his haste that all men were liars, but had he lived at present in Peru, he might—as the Scotch minister put it—say the same, very deliberately. The common people are born and bred to it, but their lies are clumsy, palpable, and comparatively harmless. With the priests and privileged classes, however, it becomes a studied art. "We must dissimulate," said the chief priest of the convent, and I will give him the credit for consistency in this; for during the three weeks I had the opportunity of studying this great economist of

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truth, I never once knew him utter a word that could be relied upon. And yet we must own to the weakness of being over and over again misled by the arch-deceivers. Forgetful of all warnings we went on trusting that by some accident they might prove truthful to us. Such were the guides with which we entered the great Trans-Andean forest after crossing the Pucartambo river. We were a goodly company to start with, consisting of seven Europeans, as many Cholos, and a score of mules. The shade of the gigantic trees seemed grateful at first; like passing from the hot blazing noonday to the cool dim gloaming. But the road was a villainous rut at a gradient of about one in three, a width of about eighteen inches, and knee deep in something like liquid glue. Before we had gone five miles one half the cavalcade had come to grief, and it was some weeks ere we saw our pack mules again; indeed, I believe some of them lie there still. We soon found out that the *padres* knew as little about the path as we did ourselves, and the upshot was we were benighted. Shortly after six o'clock we were overtaken in inky darkness, yet we plodded on, bespattered with mud, tired, bitten, and blistered by various insects. Whole boxes of matches were burned in enabling us to scramble over logs or avoid the deepest swamps. At last there was a slight opening in the forest, and the ruins of an old thatched shed were discovered, with one end of a broken beam still resting upon an upright post, sufficient to shelter us from the heavy dews. It turned out to be the tomb of some old Inca chief whose bones have lain there for over 350 years, and there, on the damp earth, we lay down beside them, just as we were. Our dinner consisted of a few sardines, which we ate, I shall not say greedily, for I felt tired and sulky, keeping a suspicious eye upon the Jesuit priests. We had resolved before leaving home that we would never move on Sunday, but when next day dawned we saw the absurdity of sitting in that old damp sepulchre longer than we could help.

We were told, by the way, that the bones we were handling were the bones of Athawalpa, so treacherously murdered by Pizarro; but in Peru, of course, every such tale must be taken *cum grano salis*, and in this case the remains turned out to be those of a pretender who died about 1740. A start was again made without much regard to toilet, and we rode for a few hours, till the path the Government of Peru had prepared for us came abruptly to an end, and we were not sorry. This path,

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which we had the pleasure of wading along for some 20 miles at a gradient of one in three up and down, is looked upon as a great piece of engineering for a Peruvian, and so delighted were the authorities in Lima with the achievement that they actually bestowed upon the engineer-in-chief the degree and title of Doctor. I have in other countries travelled in tracks traced and made by elephants, and had reason to admire their gradients and marvel at the topographical knowledge displayed, but anything so perfectly idiotic as this atrocious trail I had never before been doomed to follow so far. It was a relief to leave it and cut our own way through the jungle, or follow occasionally the paths of the Chunchos who come hither for salt. The Cerro de Sal, or mountain of salt, lies a few miles to the west, providentially placed here for the benefit of the poor natives who come from many hundreds of miles around. The supply is said to be practically inexhaustible, and as to its savour and purity I can well vouch, having for months used it as it was quarried out of the hill. Soon after leaving the Peruvians' path we found ourselves upon an extensive *pajonal*, or *pat na*, as we call it in Ceylon, where the great forest abruptly and completely ceases, and we have instead a grassy sward. it may be from a few acres up to a few thousand acres. Here there are about 500 acres, and our

> "Scottish fairies never trod
> A greener nor a softer sod."

But our chief delight was in the glorious view. I shall never forget that calm, bright Sunday afternoon when we looked out for the first time on the great interminable forests of the upper valleys of the Amazon. Right in front of us as we stood with our faces to the east were evergreen hills of various altitudes, all richly clad, and undulating down towards the great plains of Brazil. We were standing at a height of 4,600 feet, but, even in that clear atmosphere, could see but a comparatively short distance; still it showed better than any words can convey the extent and richness of this vast reserve, and the absurdity of the cry that the world is getting overcrowded. Why, we have only as yet been nibbling at the outside borders, and are now trying to peep over the walls of the great garden itself. The extent of this unbroken forest is probably greater than our whole Indian Empire. "From Plymouth to Peterhead," said Mr. Stanley, in describing the extent of forest he came across in Africa; but here is a forest stretching as far as from Plymouth to Timbuctoo, with a few hundred miles to spare! In



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estimating this I adopt the figures of that very reliable authority, Alfred Russell Wallace, who travelled in the lower portions of this forest for some three years, and whose definitions of the upper Peruvian boundaries I can confirm. Behind us tower the snow-capped Cordilleras, from which the ever watchful condor swoops down in search of prey—and woe to the unwary traveller who may be found sleeping or exhausted on these distant and dismal mountain passes; but our immediate surroundings are mild and peaceful to a degree. The faint buzzing of bees, the subdued chirping of finely feathered birds, the flutter of brilliant butterflies, are the only commotion in the air, itself the perfection of summer temperature. What a glorious spot in which to form a quiet, comfortable home! Quiet it certainly would be—lonely it might seem to those accustomed to town life; but healthy it could scarcely fail to be at this altitude, where the climate seems similar to that of the best parts of Great Britain—say Braemar in August. Imagine this all the year round, every month seedtime and every month harvest. What crops of vegetables and fruit might not be produced in such a climate and in such a soil! Had poor old Malthus only been permitted to look upon a country like this, so rich, and yet so tenantless, his pessimistic fears of the population outgrowing the means of sustenance would have quickly vanished.

Right below we could see the River Perene wending its way to swell the mighty Amazon, and our object now was to get down to this tributary. Unfortunately, we had lingered rather too long over this view, and it was four o'clock ere we felt inclined to move. Better for us had we pitched our camp there for the night, but we were induced once more, against our better judgment, to believe the *padre*, who declared he could in two hours take us to the house of one King Chokery, a Chuncho chief. "I know the way," he said, as he mounted his mule, but scarcely had he gone a hundred yards when the so-called way became impassable, each step being a drop of five to six feet. For a time we dragged the poor animals after us, but ultimately had to leave them behind, plunging into the forest again just as it was getting dusk. We were now down to about 2,000 feet above sea level. The air was very steamy and the vegetation most luxuriant, but we were past the stage of studying botany. Tantalised by thorny creepers, like the "wait a bit" of Ceylon, tripped up by gnarled roots, rising again only to have our hats knocked off by an overhanging branch—

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elegant fern trees and beautiful palms may be there, but we are in no mood to admire. We now come to a newly-burned clearing, intended for yucca, as we afterwards learned. It is not by any means the first clearing we had scrambled through, but this had been so badly lopped that the fire had only succeeded in burning the leaves and blackening the branches. To scramble through such a confused mass in daylight tries the best of tempers. You can imagine what it was for tired men in the dark.

Ashamed to think how we had again been befooled by the dissembling priest, we plodded on, shouting till we were all hoarse, and listening only to the echo from the opposite ridge. Still we knew, if we kept on descending, we must, sooner or later, come to the river. But our strength and patience were getting sadly exhausted, and every five minutes we had to sit down to breathe; the perspiration pouring from us in little streams.

The night was calm, and a death-like silence reigned all around, not even a jaguar growled, not a monkey chattered, but we could now hear the distant murmur of the water, and, Oh, *caramba!* a human voice at length answered our call. Nearer and nearer we drew to the spot, and at length, through an opening in the jungle, saw the swinging of a fire stick. A few minutes more and half our troubles were forgotten in shaking hands with the owner of the welcome voice. This gentleman turned out to be the King's medical adviser. I do not know if he had taken his M.D., but the learned doctor had at least one European word which he used to good effect—"Amigo! Amigo!" he said, as he shook hands with us. It turned out the King was prostrate with fever.

KING CHOKERY]

The palace was simply a thatched roof supported by a few jungle trees, and on a raised bench in the

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centre of the only apartment lay His Majesty, groaning. Our chief priest cautiously approached, unbuckled his flask, a sort of bladder he always carried well primed with rum—the only spiritual matter he dealt in. The tube attached to this he placed in the royal mouth, into which he injected a liberal supply of the spirit, which for the moment had the desired effect. The King, lifting his head, indicated that we might be permitted to lie down on the earthen floor at his feet, and there we lay, supperless and saturated with perspiration, till next morning. I arose, I need scarcely say, but little refreshed. But then the surroundings were so intensely interesting that I soon forgot my aching limbs as I gazed upon the marvellously beautiful vegetation. We were within a hundred yards of the river Perene, and after a bath in its clear tepid water I felt fit to tackle the manioca roots upon which we breakfasted. Our immediate surroundings in the palace were, however, very filthy, and the curiosity displayed by the royal family became rather inconvenient as they grew more familiar. They had never, for instance, before seen human beings with anything in the shape of beards, and seemed greatly amused as they came to rather closely handle us. The Queen, by the way, seriously suggested that I would be much improved by being well tatooed, and actually proposed carrying the operation into effect herself—a decoration, however, which to her great disappointment I, being a modest man, protested against.

THE QUEEN.

For day after day we had to remain the involuntary guests of this curious household. Our object was to get down the river, and we had to await the recovery of the King before labour could be commanded, and balsas (rafts) made. But the time was

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not altogether wasted, for we made daily excursions into the forest, with increasing interest and admiration. Never had I seen such a variety of plants. It is one of the characteristics of tropical vegetation that plants of the same family are less sociable, as it were, than in the cooler regions of the world. In North America, for instance, the same dark green pine covers thousands of square miles, and in Australia the dingy eucalypti and myrtle monopolise half the ground; or, nearer home, that most sociable of all plants, our heather, still covers a very large extent of our country. There is nothing of that kind in the purely tropical regions; and here, in the upper tributaries of the Amazon, the variety is almost incredible, for scarcely two plants of the same family can be seen growing side by side. Diversity is the rule, nature delighting both in variety and contrast: one tree upright as an areca palm, another sloping over a chasm; one with bark smooth as ivory, the next prickly as "acacia horrida." Exceptions there are, and one might be seen in most river banks, viz.—the balso wood (*ochroma piscatoria*), as if providentially placed there for the natives, who invariably use its remarkably light wood for their rafts. The ochroma has a cotton-like fruit which might be used for stuffing beds, &c.

The graceful ivory palm (*phytelephas*), may also be seen in small groups, indicating the very richest spots of soil. Near to this may be found a solitary cacao (*theobrama*), 30 to 40 inches in circumference, and rising to the mature height of 50 feet.

Coffee, of course, is not found wild here, but at intervals we came upon gigantic specimens of the cinchona, both calisaya and succirubra, 6 feet in circumference. The walnut of Peru, an undescribed species of *Juglans*, is frequently seen in the Perene Valley, growing to a height of 60 to 70 feet. Satinwood there is also, but not the satinwood of Ceylon (*chloroscylon*); for though the wood looks similar, the family (*ebenacea*) is in no way related to our Ceylon tree. The indigenous coca, as an undergrowth, we rarely came across, except in semi-cultivated patches. Gigantic cottons, the screw pine (*carludovia*) —from which the famous Panama hat is made—the grand scarlet flowering erythrina, and another tall and brilliant yellow-flowering tree—probably the laburnum of Peru—add much to the beauty of the scene. Many other leguminous plants we also noted, particularly calliandra and clitoria.

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Innumerable orchids, mosses, and ferns, sufficiently indicated the humid nature of the climate. Probably the chief distinguishing feature in Peruvian vegetation is that it is an essentially flowering and fruit-bearing vegetation, rather than the excessively leaf-producing, which so distinguishes the luxuriant greenery in Panama, the West Indies, and Ceylon. Peru, undoubtedly, possesses a richer soil, and a climate more favourable to fruit bearing; while, compared with the massiveness and grandeur of the Trans-Andean forest monarchs, the jungle trees of India and Ceylon are somewhat diminutive. A few plants we missed; the beautiful and useful yellow bamboo is not there, nor are the palmyra, talipot, and cocoanut palms. The jak and bread fruit trees might also be introduced with great advantage. The cultivated grasses of the East, the Guinea and Mauritius grass, are here already, but as a nutritious fodder they cannot be compared with the "Alfalfa."

There cannot be said to be any cultivation here, but we can see by the well-beaten footpaths leading to them that certain plants are more highly prized than others, and coca (*erythroxylon*) is one of the chief favourites. Around little patches of this plant the jungle is occasionally cleared away, and the coca leaves are carefully harvested.

Coca, from which the invaluable drug, cocaine, is obtained, is a native of this locality. It is a plant not unlike the Chinese tea, though scarcely so sturdy in habit, growing to a height of from four to five feet, with bright green leaves and white blossoms, followed by reddish berries. The leaves are plucked when well matured, dried in the sun, and simply packed in bundles for use or export. Probably tea might be treated in the same way and all its real virtues conserved in the natural vessels of the leaf till drawn out in the teapot. The fermenting and elaborate manipulation introduced by Chinamen is of doubtful utility. Of the sustaining power of coca there can be no possible doubt; the Chunchos seem not only to exist, but to thrive, upon this stimulant, often travelling for days with very little, if anything else, to sustain them. Unquestionably it is much superior and less liable to abuse than the tobacco, betel, or opium of other nations. The Chuncho is never seen without his wallet containing a stock of dried leaves, a pot of prepared lime, or the ashes of the quinua plant, and he makes a halt about once an hour to replenish his capacious mouth. The flavour is bitter and somewhat nauseating at first, but the taste is soon acquired, and, if not exactly palatable, the benefit under fatiguing journeys is very palpable.

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Cold tea is nowhere, and the best of wines worthless in comparison with this pure unfermented heaven-sent reviver.

The chief food of the Chuncho when at home is, however, the yucca (*jatroba manihot*), the cassava of the East, which also obtains a certain amount of care and protection, in this case almost amounting to semi-cultivation. The plant may be freely grown from cuttings the thickness of one's finger, stuck obliquely into the ground. In about nine months the roots, the only edible part, are fit for use. They look like huge kidney potatoes, or roots of the dahlia, and taste when boiled something between a waxy potato and a stringy yam. Roasted they are better. Still, one wearies even of roasted yucca; for weeks I had no other solid food, morning, noon, nor night, and, though duly thankful for these mercies, I have no craving for another course of yuccas. With the Chunchos, as I have said, they form the chief food. Fish is the favourite accompaniment, though they do not despise a slice of wild turkey when obtainable, which is but seldom. Black monkey and white maggots are delicacies set before the king.

They have no regular meal hours, but eat like cattle, whenever they have a mind to. That is to say, if food is at hand, if not, there is always the coca.

The papaw *(carica)* is here one of the most abundant of indigenous fruit trees. The eastern world has been indebted to Peru for many good things, and the best variety of papaw is one of them. The pleasant, melon-like fruit is not only very agreeable and digestible in itself, but it has the property of helping the digestion of other foods, particularly flesh meats, with which it may come in contact. Even the leaves rolled round tough beef is said to tender it, and the most ancient fowl hung up in this tree for a night will become like chicken. The juice is used by the Spanish ladies as a cosmetic. But the most valuable product of this prolific tree is fibrine, so beneficial to the dyspeptic. One peculiarity is that its male and its female flowers grow on separate plants, and the tree is thus called *papaya*, or *mamai*, according to sex.

After a weary wait of eight days the royal patient began to show signs of recovery, his subjects coming in crowds to call upon him, bringing presents, generally large white maggots, about three inches long, which the King greedily ate.

On such occasions it was curious to note how, on the approach of visitors, the ladies disappeared, just as ladies sometimes do nearer

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home, reappearing again in all the dignity of the warpaint of their tribe. The preliminaries seemed soon over, and, hunkering down in a circle, the social chat over the latest sensation at once had full play. No doubt *we* formed the chief topic, and, judging from the loud laughter of the company, were evidently looked upon as harmless lunatics, frequent allusion being made to bunches of flowers and weeds we had gathered, which caused much merriment.

King Chokery at length gave orders for balsas to be made, and trees were at once cut down and fixed together by pins of palm wood. The balsa, or raft, consisted of seven logs, about 24 inches in circumference, rather roughly pegged together, but sufficiently buoyant to support three of our party on each. Seven of these rafts carried our company of twenty; the King accompanied us, and as he himself had never been forty miles down the river, it was an interesting voyage of discovery to all concerned.

We started in single file, I electing to sit in the prow of the foremost balsa. It was a glorious morning, and as we glided onward at the rate of four miles an hour, through ever changing, but always enchanting, scenery, the effect was indescribably exhilarating. Every nerve seemed stretched to the highest pitch of enjoyment; the eyes, glancing from scene to scene, took in more impressions than the mental powers could take note of. Such a wealth of vegetation seems to mock at the idea of a few poor puny planters ever making any impression upon it. The leafy monarchs may indeed be cut down, but who is to keep that interminable undergrowth in check. Beautiful as these creepers are as they hang in festoons from the lofty trees, they almost bid defiance to the progress of explorers, and a path cut, which in other countries would remain open for years, would here close up in a few weeks. Such seems the inexhaustible fertility of the soil, and such the forcing nature of the climate, that there is a mixture of awe in our admiration. In every other country we know, the more fertile the soil, the more friendly it is to man; but here, its excessive fertility has led it to be looked upon as an enemy to his progress. But, as an old planter, I do not despair of its fertility being yet turned to good account. If we could only tap the labour supply of India and China, where there are millions to spare, and conduct the stream hither, the result, if well directed, would bring a wealth of supplies, such as the world has not before been blessed with.

Turning a bend in the river we are struck by what seems the

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ivy-clad ruins of an ancient castle; but it turns out to be only an aged tree clad from top to bottom with verdant creepers, its huge horizontal arms supporting a perfect screen of living trellis-work below, while ferns, lycopods, and rare orchids, beautiful in hue as they are grotesque in form, grow upright from the damp decaying bark. The original tree itself is so hidden that it is hardly recognisable, but from its curious buttresses we suppose it to be a ficus. Right behind, on the steep bank, stands a lovely scarlet erythrina, 40 to 50 feet in height, in full flower; while, 100 yards to the right, a still taller tree, with bright yellow blossoms, stood out conspicuously—evidently a very near relative of our own laburnum. To the left is a group of palms, near to which we can see a grand, specimen of the cinchona tree, and another of the cacao. One of the noblest trees in this forest is the walnut, a variety new to us.

The whole scene is one of surpassing beauty, but it must be remembered that from the river we see it to the greatest advantage. The leafy boughs naturally bend to the light and lean lovingly over the water, while flowers can only bloom in the bright sunshine. Nothing could be more dismal than to scramble beneath the dark forest, and the further one penetrates the more monotonous it gets. Scarcely a flower or a bird is to be seen there; all such life is at the top. Not even the snakes will cross your path, for they too are children of the sun. It is like living in a dark cellar and longing to get out into the cheerful light again.

Merrily our rafts glide down the river. Here and there we have a few yards of rocky rapids, requiring careful navigation, but beyond an occasional ducking nothing of importance happens to us. Natives, armed with bows and arrows, creep from below the trees and look at us with evident wonder and some suspicion, but offer no active hostility; or we suddenly come upon them as they are shooting their arrows into a passing fish. Our *padre* here astonished the natives by throwing in a charge of dynamite, the result of which was five or six dozen fine fish on the surface within a minute. This diabolical and unsportsmanlike mode of fishing is, I am sorry to say, daily practised by these Convent fathers. There was a tremendous scrimmage in the water after the dead fish, and by the time it was over the sun was sinking behind the trees. Moreover, heavy rain set in, causing us to seek such shelter as was obtainable.

We followed the Chunchos into the jungle by tortuous paths for about a mile ere we came to a hut; but before being permitted to

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enter, we were first led to witness their prowess as marksmen, the target being a banana tree at about 40 yards distant, which was soon bristling with arrows. Sufficiently impressed with this, we were allowed to enter a hut, about 10 by 20 feet, into which we all (about 30 in number) were huddled for the night, and, after drinking a little Liebig's Extract, tried to sleep, but without success. We lay on the floor like sardines in a box, our hosts crowding on to a rude bench in front watching our every movement. The house was so narrow that my head lay right below the eaves, which continued to drip all night. Sleep was an impossibility. The Chunchos drank their abominable masato, and soon became uproarious, evidently cracking their favourite jokes, judging from the screaming laughter. This was varied by an idiotic war dance, and in other respects their deportment was even more objectionable. We are apt to imagine that man in a perfectly natural state must be a very delightful and interesting creature. On the contrary, my experience is that no other animal is less lovable or more repulsive in its habits than a thoroughly untamed man or woman. These Chunchos, or "Campas," are evidently the remnant of a very barbarous and low caste race of untameable savages, recognising no laws, and killing each other with as little compunction as we kill our rodents. On the night before we passed down the river, a woman and two children were tumbled off a raft and drowned. It seemed the standing joke of the day, and no one more enjoyed it than the woman's husband, who danced with fiendish glee the whole night through, encouraged by the screaming laughter of the native ladies. If loud laughter, by the way, be a healthy and happy sign, the Chunchos are to be envied. My experience of mankind, however, is that he who laughs loudest and is most easily moved to tears is not always the man to be most trusted. I was not sorry to see the sun rise next morning, and did not linger long over our early breakfast, which consisted of tea and yucca, the latter like badly-boiled potatoes.

Once more on the river we were all alive with excitement. Several tributaries fall in; one, the Ipuki, equal to the Don in volume, adds palpably to the depth and force of Perene, upon which we are now carried at the rate of about 5 miles an hour. Denser and denser became the forest, now no longer relieved by patches of grassy land. Such perfect lands for coffee and cocoa cheered the heart of old planters, while such unheard-of varieties of orchids,

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ferns, gloxinias, begonias, and caladiums, were enough to drive a botanist frantic.

The question here naturally arises, Why has this rich country been allowed to remain, from the creation to the present day, in a wild and desolate condition?—a country capable of supplying many millions of inhabitants with not only the necessities of life, but also all the luxuries the most fastidious appetites could desire. When we see so many less favoured countries crowded and cultivated to the utmost, it does seem strange to see this magnificent land left to a few Chunchos, who are really little better than the monkeys that grin on the branches above them. Practically, it is *no man's land*, for it has never been taken possession of, the present nomadic tribes recognising no laws, no government, no God.

In every other country we know men have succeeded in subjecting the productive powers of nature to his sway; and is there no hope that such will yet be the case with the valleys of the Amazon? Are men always to despair of utilising this marvellous vegetation, and to be for ever overwhelmed by the excessive bounties of nature? Surely the time has come, or will soon come, when this, the richest portion of the globe, will no longer be entirely left to nature and the few wandering tribes who are so utterly incapable of making any proper use of it.

We had landed for luncheon under a far-spreading rubber tree, and so refreshing was the shade and inviting the scene that we fain would have pitched our camp there for the night in order to thoroughly explore the locality, but our guides, who were fast becoming insufferable nuisances, urged us onwards, stating that the cascades were still a long day's journey off and that we ought to push on for a few hours more, so as to reach them before next night. So again we started, but had scarcely moved 300 yards when I, still in the prow of the first balsa, began to feel we were gliding along rather faster than was pleasant, and distinctly heard a not very distant roar like muffled thunder. All at once it dawned upon us that we were uncomfortably near the rapids, and the greatest possible exertion was required to beach our rafts. I never jumped on the banks of a river with a greater feeling of relief. We had now time to take a leisurely view of the rapids. Though not more than four or five feet of a fall in any one place, a succession of these was sufficient to obstruct further navigation, though lasting only for a few miles, probably under ten. Our aneroids told us we were now 1,050 feet

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above sea level, and as the water has quite 3,000 miles yet to run before reaching the Atlantic, the average fall is not great We would now have naturally wished to work our way down to the Atlantic, by far the easiest and most natural outlet, but we were under orders to visit other tributaries of the Amazon 200 miles to the north, so we had reluctantly to wend our way back. We slept that night rather comfortably under a tree, but before going to rest I shot a large snake which hung from a branch above us, and the only one we saw during our sojourn. Next morning we arose more refreshed than usual, explored the country a little, finding the vegetation now gradually assuming a low-country type, took some photos of the rapids, and then prepared to start on our return voyage. We found, however, that something like a mutiny was brewing in the camp. The priests declared that the rum was done, and that it was ridiculous to think that men could live in this country without drink. The King grumbled because the jam was finished, while the Chunchos struck work for no earthly reason at all. For a time we moved away slowly and sullenly, chiefly by walking along the margin of the river, for about two miles, when matters came to a deadlock. The chief priest disappeared, and we never saw him more, the reverend brother slyly followed, stealing the few bottles of spirits we had carefully laid aside in case of sickness. Our own servants also vanished, we knew not why nor where; and just as the shades of evening were closing in we could see by the lurid light of a log fire, suspicious movements in the surrounding jungle. The natives, in short, were gathering in force, each armed with a bow and a bundle of arrows. They peered at us from behind trees, and apparently awaited a signal. It was a trying moment, and the probabilities were against our escape. Still, the uppermost feelings in our minds seemed to be that the actions of even those creatures are under the control of a greater Power than a Chuncho chief or a pseudo priest, and that practically we were in no more danger than we might be comfortably sleeping at home.

Meanwhile, we hugged our rifles and revolvers, collected our cartridges, and continued rubbing our weapons. It was at this moment that one of our party burst forth with "O, gin I were whar Gaudie rins" which he rendered with much pathos. Shortly afterwards we observed our Chuncho visitors being served with drink by an old crone whose vocation was evidently to prepare the stimulating beverage. The drink was followed by a dance, and again the old

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crone appeared with the big pumpkin bottle, and drink and dance alternated till the hilarious company seemed to forget and ignore our very existence. This went on "till daylight did appear." We had, of course, never shut an eye, and did not feel very brilliant, but considered ourselves fortunate in being alive enough to coax a few of the soberest of the gang to help us up the river with our rafts. By dint of great exertions we succeeded in getting about six miles onwards before breakfast, overtaking the truant *padre*, No. 2, who, having drunk a whole bottle of brandy, fell asleep over it. It would be tedious to tell of our struggles for the next few days and nights; suffice it to say we once again reached the King's hut in safety, which, after such roughing as we had gone through, seemed a palace indeed.

Appended is a table showing the altitude of stations visited, also a few of the more notable plants found.

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## ALTITUDE OF STATIONS VISITED,

### WITH APPROXIMATE DISTANCE FROM LIMA.

| Direction from Lima | Miles from Lima. | Name of Station, &c. | Feet above Sea Level. | Mean Tem. (approximate). | Remarks. |
|---|---|---|---|---|---|
| | | Lima (distant from sea-port, CALLAO, 8 miles) | 499 | 69 | Rainless. |
| E. | 10 | Santa Clara | 1,311 | 73 | ,, |
| ,, | 25 | Chosica | 2,800 | 70 | ,, |
| ,, | 39 | San Bartolome | 4,959 | 69 | ,, |
| ,, | 43 | Aqua de Verrugas | 5,839 | 68 | ,, |
| ,, | 55 | Matucana | 7,788 | 65 | Dry. |
| ,, | 70 | San Mateo | 10,534 | 60 | ,, |
| E.N.E. | 79 | Chicla | 12,215 | 53 | Showery for 3 months. |
| ,, | 87 | Casa palca | 13,606 | 49 | ,, |
| ,, | 100 | Monte Meiggs (snow limit) | 17,575 | 40 | Snow. |
| N.E. | 120 | Pacha Chaca | 13,420 | 50 | Dry for 9 m'ths. |
| ,, | 128 | Oroya (present terminus of railway) | 12,178 | 52 | ,, |
| ,, | 148 | Tarma (chief town of the Sierra) | 9,800 | 58 | ,, |
| ,, | 152 | Acobamba (perfect climate) | 8,900 | 60 | ,, |
| ,, | 172 | Huacapastana | 7,500 | 62 | Rainy. |
| ,, | 197 | Chunchamayo (La Merced) | 2,400 | 76 | Moist. |
| ,, | 222 | San Luis | 2,200 | 70 | Wet. |
| E.N.E. | 242 | Metraro | 4,600 | 64 | ,, |
| ,, | 253 | King Chockery's | 2,100 | 77 | Moist. |
| ,, | 300 | Cascades | 1,050 | 79 | ,, |
| N.E. | 183 | Junin | 13,200 | 50 | Snow showers. |
| ,, | 203 | Carhuamayo | 13,300 | 51 | ,, |
| N.N.E. | 230 | Cerro de Pasco | 14,518 | 48 | ,, |
| ,, | 254 | Huarrica | 9,600 | 59 | Rains Nov., Dec., & Jan. |
| ,, | 290 | Ambo (delightful climate) | 7,400 | 64 | ,, |
| ,, | 305 | Huanaco | 6,075 | 65 | ,, |
| N.E. | 210 | Inca pilka | 13,300 | 47 | Snow showers. |
| ,, | 175 | Banios | 13,800 | 45 | Frost at night. |
| N. | 240 | Chimbote (on sea coast) | | 68 | Rainless. |
| ,, | 280 | Suchiman (on the Santa) | 200 | 67 | Dry. |
| ,, | 300 | Truxillo (7 miles inland) | 150 | 71 | Rainless. |
| ,, | 350 | Casa Granda | 200 | 68 | ,, |
| ,, | 360 | Cartavia | 250 | 64 | Dry. |

Of the three aneroids we took with us, one only (Mr. Clark's) remains in order, but the best aneroid is not so much to be depended upon as the boiling point thermometer, which is always reliable.

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## *A List of a few of the more notable plants found growing in Peru.*

**Abutilon.** *Venosum* and various, abundant up to 10,000 feet above sea level. Indigenous.

**Acacia.** *Corniegera, Guayaquilensis,* &c. Common.

**Achimenes.** Numerous, rare, and beautiful varieties on the Perené, 1,500 feet above sea level. Indigenous.

**Acineat.** *Humboldtii.* Orchid. Crimson and dark brown flowers.

**Achras Sapota,** or wild plum.

**Æchmea.** *Mucroniflora.* Common by the wayside. (Bromelworts).

**Acrocomia.** A pretty palm, growing about 35 to 40 feet in height.

**Acrostichum.** Climbing ferns, common in moist localities.

**Actinomeris.** Aster-like plants growing at a considerable altitude.

**Adenotrichia.** A kind of groundsel.

**Adesmia.** (Legume.) Evergreen shrub.

**Adiantum.** The well-known maiden-hair fern. Numerous varieties on the eastern side of the Andes.

**Agâve.** A very numerous variety of these plants in all the dry regions. Varying in height from 1 to 30 feet, and from sea level up to 14,000 feet. "*Rigida*" produces *Sisal hemp.*

**Ageratum.** The composite weed which costs Ceylon planters so much to keep it down; growing here from an altitude of 8,000 to 12,000 feet above sea level. Indigenous.

**Allamanda.** (Dogbanes.) Handsome flowering but poisonous plants.

**Alona.** Pretty shrubs with large flowers.

**Alonsoa.** Shrub with scarlet flower. The prettiest seems to be "*Matthews,*" about 18 inches in height.

**Aloysia.** The well-known "Scented Verbena" growing freely in the temperate portions of Peru.

**Alströméria.** A lovely lily; scarlet and crimson. Native of Peru. Tubers edible.

**Alzatea.** An evergreen about 20 feet in height.

**Amyris.** From which resin is extracted. Exotic.

**Anacardium.** Producing the Cashew-nut and a gum like gum-arabic. Lima gardens.

**Ananassa.** The *Pine Apple,* and the finest in the world; much superior to any produced at Kew or in India.

**Anchieta.** A climbing violet.

**Andromeda.** Pretty heath-like shrub, probably exotic.

**Angelonia.** Figwort. Herbaceous plant, blue flower.

**Anguloa.** Pretty pinkish orchid.

**Anguria.** A creeper of the cucumber family; common.

**Anona.** (Cherimoyer). The famous fruit of Peru, or indeed of the world. Found in perfection at Huanuca.

*A. Muricata,* or Sour Sop, is refreshing but much inferior to the above. There are numerous other varieties of Anona.

*A. Reticula* is the Custard Apple. *A. Palustris,* the Alligator Pear. All indigenous.

**Aphelandra.** (Acanthads.) Handsome plant with var. leaf and golden pointed bracts. Hot, moist places.

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**Anthurium.** There are numerous varieties of this plant more curious than beautiful, the spathe being the chief ornament. Perené valley.

**Apeiba.** A natural order very common in Peru, but probably exotic.

**Arucaria.** One of the few conifers to be found on the Cordilleras.

**Arbutus.** Heath-like shrub occasionally seen on the Plateau.

**Areca.** On the Montana sometimes seen, but not so common as in Ceylon.

**Aspasia.** One of the very numerous orchids, chiefly yellow.

**Astrocaryum.** A graceful dwarf palm, with peculiarly well-marked rings. Common.

**Attalea.** Another of the palm tribe considerably taller than the above. Nuts used for toys, door handles, &c.

**Azara.** A Chilian shrub with yellow flowers. Nat. order, Bixads. Lima.

**Aristolochia.** (Birthwort.) Climber with large flowers, often 1 foot in diameter, worn in play as caps by boys.

**Arracacha.** An excellent vegetable, similar, but superior, to the parsnip; extensively grown in Peru.

**Avocado.** *Pear. (Persea Gratissima.)* A much and deservedly esteemed fruit, eaten at every meal when obtainable.

**Apples** of excellent quality. *Apricots*, and most other European fruits abound all the year round, thanks to the diversity of climate. Even the blaeberry finds a congenial home on the Andes (near Junin).

**Alfalfa.** The Peruvian name of a first-rate fodder for cattle, an inferior variety of which is known in Europe as Lucerne (*Medicago Sativa*).

**Avena.** The wild oat, covering whole mountain sides, giving a golden tinge to the landscape near Matucana.

**Anemone.** Found near the snow limit.

**Baccharis.** A plant from 2 to 3 feet high with white aster-like flowers. Roots sometimes used in flavouring wine.

**Bactris.** A small palm, common on the Montana, of the same family as the "Penang Lawyer."

**Batatus.** A convolvulus—the sweet potato.

**Barnadesia.** (Composites.) A pretty shrub, growing about 4 feet and evidently deciduous. Cordilleras.

**Begonia.** There are numerous varieties of Begonia in Peru, chiefly bulbous and herbaceous. A common undergrowth in the moist valleys of the Upper Amazon.

**Bejaria.** Heath-like shrubs, growing to a height of 8 to 12 feet. Indigenous to Peru. Flowers purple.

**Berberis.** An evergreen variety of this well-known plant is common in the higher regions of Peru. Flowers yellow.

**Bertholetia.** From which we get the Brazil nuts of commerce. On the Amazon. See specimens in Lima Botanical Gardens.

**Besléria.** Small undergrowth shrubs, with yellow flowers; growing in the low country.

**Bignonia.** Gorgeous flowering climbers; found growing near Tarma, Huanuco, and elsewhere on the eastern slopes.

**Billbergia.** Pretty yellow flowers; herbaceous; native.

**Bixa.** The Arnotta, used for colouring cheese, &c. Very common and luxuriant all over Peru where any vegetation exists.

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**Blechnum.** A pretty little low country fern; on the Perené.

**Bomarea.** A lily with red flowers, the roots of which are sometimes eaten; triangular seed pods.

**Bombax.** Silk cotton, like Kapok. Several varieties of this giant tree found on the Perené river.

**Brassia Peruviana.** This and innumerable unnamed and undescribed varieties of Orchids are found in great profusion in the Pampa Hermosa.

**Bromelia Sylvestris.** Crimson flowers; found near Tarma.

**Brownea.** Red-flowered shrub.

**Buddlea.** Several, very common by the wayside; 10 to 15 feet high.

**Bouganvillea.** A gorgeously beautiful plant found wild in the warm mountain valleys, or with its beautiful rose-coloured bracts covering and hiding many a deformity in Lima. Common in Colombo now.

**Byrsonima.** A moderate sized evergreen tree, the bark of which is used in tanning.

**Bidens.** A yellow, aster-like mountain flower.

**Bœmeria.** A kind of nettle which affords the valuable *Rhea* fibre; growing very luxuriantly near Lima.

**Cacoa.** The native home of the Cacoa tree—pronounced *Kakow* by the natives—from which we derive our cocoa and chocolate of commerce; found growing wild from 1,000 to 2,500 feet above sea level.

**Cactus.** Peru seems also the chief home of the Cacti family. Tens of thousands of acres on the dry precipitous mountains are covered with little else, the grotesque forms and brilliant flowers being alike remarkable.

**Caladium.** Numerous and beautifully marked.

**Calceolaria.** This familiar flower is indigenous to Peru, the yellow variety particularly covering whole mountain ranges on the west slopes.

**Calliandra.** Leguminous plant; abundant on the Perené.

**Canella.** A sort of wild cinnamon; growing freely in the Pampas.

**Capsicum.** The Chili or Cayenne pepper, "Aji" of the Spaniard, and as necessary to him as salt.

**Carica.** The Papaw; a most valuable tree, from which is obtained the papaine; finest near Lima and Pampa Hermosa; edible fruit.

**Caryota.** A noble palm; found on the Perené. *Horrida*, the "*Katu Kitul*" of Ceylon.

**Caryocar.** A gigantic tree with large flowers, followed by edible nuts.

**Castor Oil Tree** (*Ricinus*). May be seen growing wild anywhere below 12,000 feet.

**Cæsalpina.** Leguminous; pods used in Lima for making ink; a variety of our Sappan wood of Ceylon (*Divi Divi*).

**Cattleya.** Orchid; abundant in moist valleys, the Perené being especially rich in this plant.

**Cecropia palmata.** Natural order (*atocarpads*); found growing near King Chokery's hut on the Perené.

**Centroclinium.** Pretty little annuals; composites.

**Cephaelis.** The ipecacuanha of the shop; dwarf creeping plant; found near San Luis.

**Ceratosema.** A kind of tropical cranberry.

**Cereus.** The best known varieties of the Cacti tribe; also, some curious monsters.



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**Calathea.** Herbaceous perennial; leaves worked into baskets; tubers used as substitute for potato.

**Ceroxylon.** Palm, 150 feet in height, producing wax, from which candles are made.

**Cinchona.** All the best varieties, for which the rest of the world is indebted to Peru; abounding in the Montana.

**Chlorophora tinctoria.** Tall branching tree, the milk from which is used as a yellow dye—sometimes called *fustic.*

**Chrysophyllum.** The famous star apple.

**Clematis.** The white variety, evidently indigenous, but there are many beautiful exotics.

**Clitanthus.** Native of Peru, seen near Lima; nat. order, Amaryllid; yellow flower.

**Clitoria.** Leguminous plant; much admired on the Perené.

**Coburgia.** Scarlet lily, common on the Cordilleras.

**Coccoloba.** Buckwheat.

**Coca.** (See Erythroxylon.)

**Collania.** A very beautiful cream coloured lily; indigenous to Peru.

**Colletia.** Dwarf evergreen; berries used in dyeing.

**Colocasia.** Arad; producing eatable tuber.

**Commelina.** Roots like dahlias; eatable when cooked; and other varieties are evergreen creepers.

**Conocarpus.** Sometimes called *Mangroves*; evergreen; growing about 10 to 12 feet; used in tanning.

**Copaifera.** Leguminous plant, varying in height from 10 to 60 or 70 feet; yielding the Balsam of Copaiba.

**Cummingia.** A pretty little lily growing in the cooler regions—named after Lady Cumming of Altyre.

**Convolvolus drasticus.** Growing near Tarma; strong purgative.

**Cuphea.** Our familiar little bedding friend peeps up at every roadside on the hills of its native Peru.

**Carludovica.** The screw pine; indigenous; "*Panama*" hats are made from the leaves of this tree.

**Calandrinia.** Herbaceous perennial, rose-coloured flowers; growing chiefly on Cordilleras; common in our gardens.

**Callipsyche.** Amaryllid; very pretty.

**Cotyledon.** Only one variety of this house leek has been found in Peru, viz., "Decipiens" with white flower.

**Citharexylum.** A verbena; sometimes called fiddle-wood; blue fruited.

**Cyphomandra betacea.** The "tree tomato"; indigenous to Peru.

**Cedrela.** Similar to the *Toon* of India, as seen frequently from the Perené.

**Cucumis.** The cucumber in great variety. A few months previous to my visit to Chimbote the country was flooded the first time for centuries; one result was a crop of the rarest Cucurbits I ever saw. Where had the seed come from?

**Camellias.** Though exotic, in great profusion and perfection.

**[illegible]ies.** Abundant and good.

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**Cape Gooseberry.** Called "Cape" because it has a hood—a *Solanum* and miserable substitute for the gooseberry; now common in Ceylon, introduced into Australia, and even found by H. O. Forbes on the Keeling islands; indigenous to Peru, however, like many more of this family.

**Coffee.** (Coffea Arabica.) Though not indigenous, grows and bears as it was never known to bear in the old world. On the eastern side of the Andes it succeeds admirably from 7,000 feet down to 1,000 feet above sea level, and even at Lima, a few feet above the sea, it bears enormously with judicious culture; the quality is superior. The Pampa Hermosa specially adapted for its culture.

**Croton.** In great variety, public and private gardens.

**Dahlia.** Chiefly yellow.

**Dalea.** Shrub; pale blue lupine-like flower.

**Desfontainia.** A lovely little evergreen Solanum; common on coast; like gentian, with scarlet flower.

**Dicliptera.** An evergreen shrub; nat. order, Acanthads; purple flowers.

**Drimys.** Up country evergreen, with white flowers. *Winteri* is well known as the bark specific for scurvy.

**Datura.** Nightshades; seeds a powerful poison; showy trumpet flowers; indigenous to and common in Peru.

**Daucus.** A variety of the carrot found on the Andes.

**Dieffenbach.** Nat. order, Araceœ. Perennial, with pretty dark foliage; poisonous plant; grows by river sides.

**Diplandena.** Dogbane; climber; purple.

**Disteganthus.** Bromelia; scarlet flower.

**Duguetia.** A kind of Lancewood.

**Dalbergia.** The *Rosewood*, growing at Metrara and Perené.

**Dipterix.** The tree yielding the Tonka bean.

**Divi Divi,** or Casilpinia.

**Dandelion.** Found disputing the snow limit at 16,000 feet above sea level; peculiarly short stalks.

**Duranta.** Verbenace; evergreen shrub; about 4 to 7 feet high; dwarf variety found on the Andes.

**Echinopsis.** One of the numerous and curious Cacti family growing on the mountains, and looking like couching sheep; seen at Junin.

**Elais.** One of the finest oil palms.

**Elder.** (Sambucas.) Our *Bourtree*; doubtless exotic, but growing luxuriantly near Chicla, 12,000 feet altitude.

**Elisena.** A tall, beautiful, and rare lily, growing in Lima.

**Encelia.** A little yellow aster.

**Epidendrum.** One of the numerous orchids growing on the trees in the moist valley of the Perené.

**Erythrina.** Magnificent legumes; the most conspicuous and brilliant flowers on the Perené, growing to a gigantic height.

**Eucrosia.** A beautiful Amaryllis; native of the Peruvian Andes, near Lima.

**Eucalyptus.** Though a native of Australasia, grows freely on the mountain plateau, particularly at Tarma; a decided acquisition; several varieties.

**Eucharis Amazonica.** (Amaryllid.) Fragrant white flowers.

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**Erythroxylon. Coca.** One of the most precious plants of Peru. A bush about 3 feet high, the leaves of which seem to sustain the natives for days without any other food, enabling them to undergo fatigue. The leaves are simply chewed with lime or may be drawn like tea. 30,000,000 lbs. are exported from Peru, yielding the world's supply of Cocaine. I found this shrub growing in the Pampa Hermosa, 60 miles from Tarma. Indigenous.

**Escallonia.** Evergreen shrub; the predominating plant from 8,000 to 10,000 feet above sea level on the east side of the Andes; seems to take the place of coniferæ.

**Ebenacea.** Well represented by a kind of satin wood; abundant near Rio Perené.

**Eugenia.** (Rose Apple.) A pretty myrtle with pinkish flowers and pleasant fruit; growing on the Cordilleras. A species of Eugenia yields our All-spica.

**Eriocaulon.** (Pipewort.) A very curious marsh plant with dwarf aloe-like leaves, and long, straight flower stalk.

**Eriodendron.** (Allied to Bombax.) A large tree growing in the Montana, with red flowers; yielding a kind of wool which might be useful for pillows, &c.

**Euterpe.** A slender and very beautiful palm which abounds in the Montana, yielding a fruit of similar taste to the chestnut.

**Fabiana.** Nightshade—but looks more like a conifer. An evergreen shrub; credited with many remarkable virtues; locally known as Piché.

**Fuchsia.** Peru is the home of this familiar plant, though "*Corymbiflora*" seems the most common; the European florist has, however, certainly improved upon the original.

**Ficus.** Numerous varieties, but none so gigantic as in India. F. Carica (common fig) does well when irrigated on the coast. I saw large trees near Chimbote.

**Fevillea.** A rather rampant climber of the cucumber family; seeds yielding good oil.

**Fittonia.** Evergreen perennial, with pretty coloured leaves.

**Fourcroya.** A gigantic lily rising to 40 feet in height.

**Fragaria.** The strawberry; abundant all the year round in Lima; though neither in size nor flavour equal to those supplied during the short season in Aberdeen.

**Galipea.** Rueworts, from which we get the Angostura bitters, prepared in Port of Spain, Trinidad, and universally appreciated. A small evergreen shrub.

**Gaylussacia.** A kind of cranberry.

**Gossypium.** The cotton, some excellent varieties of which are indigenous to Peru; the mummy clothes show that its use had been known thousands of years ago. The best cotton is found near Payta.

**Gesnera.** The well-known scarlet flower of our green-houses; allied to—

**Gloxinia.** Both found in the Perené valley.

**Goethe.** Malvaceæ; small evergreen, with crimson flower.

**'oya.** Yellow flowering shrub; allied to tea.

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**Gymnogramma.** A beautiful Peruvian fern.

**Gentiana.** Found near the snow line.

**Geonoma.** A dwarf palm.

**Grias.** The Anchovy pear; edible.

**Griffinia.** Amaryllid; blue.

**Gronovia.** Climbing annual.

**Gustavia.** Something like a myrtle.

**Gynerium.** The Pampas grass; now introduced to and quite common in Australasia.

**Guilielma.** A curious fruiting palm, growing on the Andian slopes. Bates compared the fruit to a mixture of cheese and chestnuts.

**Habranthus.** (Amaryllids.) Common on the dry side of the Andes.

**Heimia.** (Loosestrife). Evergreen shrub, with yellow flowers.

**Helianthus.** Sunflowers of various kinds, but all yellow flowered.

**Heliconia.** Allied to *Musa.* 3 to 6 feet high; yellow flowers; found in moist valleys.

**Heliotrope.** Too well known to need description. This favourite is a native of Peru, adorning and scenting the hill sides near Matucana. All the care of the British gardener has not improved this plant.

**Hippeastrum.** A bulbous rooted plant growing near Lima, with pretty red and white flowers.

**Hippomane.** A moderately-sized tree; used in boat building; poisonous.

**Hoffmanseggia.** A trailing legume; Lima.

**Hydrotænia.** Flowers like Fritillaria; yellow and purple; seen near Lima.

**Hymenocallis.** Amaryllids.

**Howardia.** Evergreen shrub; nat. order, Cinchonacea.

**Huntleya.** An orchid.

**Hibiscus.** Malvacea. Many varieties of this have been introduced and thrive but few, if any, are indigenous. *Sinensis*, the shoeflower of Ceylon, grows everywhere.

**Hevea-braziliensis.** This is the most valuable of all the rubber trees growing in the Perené valley.

**Hæmatoxylon.** Logwood; found growing in Chanchamayo and Pampa Hermosa.

**Hura.** Sand box tree; popular remedy for bowel complaints.

**Inga.** The native Inca name; a large tree of the Acacia family; abundant in the interior. The *Inga Samen* was introduced into Ceylon, and is now being extensively planted near Kandy, forming a refreshing shade by the wayside.

**Ionidium.** A kind of violet, but used as a substitute for ipecacuanha.

**Ismene.** The Peruvian daffodil.

**Isochilus.** A very large-flowering orchid.

**Ipomea.** Very numerous and various; from one of which our Jalap is obtained; all convolvulus-like flowers.

**Indigofera.** Though chiefly natives of East India, tinctoria has been introduced into Peru, and is now a troublesome weed in Chanchamayo.

**Ixora Venusta.** (Cinchonads.) Most lovely evergreen shrubs, with rich orange-salmon coloured flowers. See Tangapoo.

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**Ilex.** The holly. Though chiefly indigenous to Britain, there are a few tropical varieties growing here; one called Paraguay tea, another South Sea tea; doubtless very correctly named "*Vomitoria.*"

**Jacaranda.** Stove evergreen; nat. order, Bignonia; blue flowers; tree about 20 feet.

**Jatropha.** (See Manihot.)

**Justicia.** Evergreen shrub, with violet flowers; tender plant.

**Jubæa.** Palm, about 30 feet high, the small round seeds of which are sometimes seen being sold in London; called by the Cockney "Little Coker-nuts."

**Juglans.** A splendid, but not yet fully described, variety of walnut, growing abundantly in the Perené valley; meanwhile named "*Juglans Gladstonia.*"

**Kidney bean.** (Phaseolus.) The bean called the Lima bean is a large whitish variety abundant all along the Pacific coast, and a very nourishing food it is—like our haricot.

**Krameria.** Nat. order, Milkwort; evergreen shrub; a powerful astringent; useful in dysentery; called Rhatany root in Peru.

**Lantana.** A pretty Verbena-like flowering shrub, better known in Ceylon than in its own native country.

**Laplacea.** Nat. order, Theads; a twiner, with serrated leaves and white flowers.

**Leopoldinia.** A beautiful palm of moderate size, the fibre from which is valuable.

**Lettsomia.** Nat order, Theads; white flowers; Pampa Hermosa.

**Lipostoma.** Nat. order, Cinchonads; dwarf shrub; growing in low country; blue bell-shaped flower.

**Loasa.** A great variety of these curious plants around Lima; interesting and pretty flowers, but poisonous leaves.

**Lobelia.** Square miles on the mountains are covered with the beautiful blue Lobelia.

**Lucuma.** (Sapolads.) An indigenous evergreen tree, producing a fruit sometimes called the marmalade plum; grows also in Ceylon.

**Lupinus.** For all the finest varieties of Lupine the world is indebted to Peru. Covering immense tracts of country at about 10,000 feet altitude.

**Lycopersicum.** The tomato; a herbaceous variety, and several annuals are indigenous; the so-called tree tomato is not a true tomato. (See Cyphomandra.)

**Liabum.** Alpine plant; yellow flower; common on Andes.

**Lycopodium.** Club moss; similar to what we see in every tropical country where there is sufficient moisture.

**Logwood.** (See Hæmatoxylon.)

**Mauritia.** Perhaps the most social palm in South America; it abounds in the Pampa Hermosa of Peru, rising to 100 feet; fruit eaten by Chunchos, and the pith yields a kind of sago.

**Manihot.** The "Juca" and chief food of the Chunchos, yielding the cassava and tapioca of commerce; growing freely in the Pampa. The Ceara rubber is also a species of the Manihot.

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**Melia**, or Bead Tree. Supposed to be a native of India, but common in Peru, as it is in Ceylon or Australia; sometimes called Pride of India or Holy Tree. The famous Margosa oil is a product of this tree.

**Macleania.** Named after a Scotch merchant in Lima. A species of cranberry; evergreen shrub, with reddish yellow flowers.

**Malva.** In great variety; annuals; herbaceous perennials; shrubs and trees; many very useful, and all beautiful.

**Marantha.** Arrowroot; a small shrub growing in the Montana.

**Marvel of Peru.** (Mirabilis.) Never could see anything particularly marvellous about this common herbaceous plant.

**Mahogany.** (Swietenia). Too well known to need description; found growing near Metraro.

**Maytenus.** Nat. order, Spindletree; evergreen shrub with white flower, growing near Lima.

**Mimosa.** This curious family is well represented in Peru, including the "Sensitive Plant," which, however, does not seem so vigorous as it is on the hills surrounding Kandy.

**Maximiliana.** A palm resembling the cocoanut tree, named after Maximilian. Lima Botanical Gardens.

**Mimulus.** The "Monkey Flowers" of our British gardens, including the musk plant, are indigenous to Peru; adorning the ditches by the wayside.

**Monnina.** (Milkwort.) A large shrub growing in the Montana, the bark of which is highly prized by the Lima ladies, who ascribe much of their beauty to the use of it.

**Myrospermum.** Which produces the "Balsam of Peru." A leguminous tree about 40 feet high; Pampa and Huallaga.

**Musa.** *Plantains*—or, as some are pleased to call them, *Bananas*—grow freely in all the moist valleys of Peru, particularly Chanchamayo; the quality of the fruit exceptionally fine. Named *Paradisiaca*, on the supposition that it is the veritable apple which brought so much woe on mankind. Supposed to be a native of Ceylon, where it certainly grows wild, but had also been known to the Incas of Peru for centuries before Columbus discovery. Grown in moist sheltered valleys. The leaves are amongst the noblest in the vegetable kingdom, while the fruit is a favourite with every tribe of mankind—the wildest savages I ever saw appreciated their plantains.

**Mutisia.** *(Aster).* Red and yellow Chicla.

**Maize.** To Peru what rice is to India. Several varieties growing from sea level up to 12,000 feet, producing from 200 to 400 fold. Innumerable ways of cooking it, and the chief drink of the country, called "*Chicha*," is prepared from maize.

**Matioco.** The leaves of a Peruvian pepper abundant on the eastern slope, found useful in stopping hæmorrhage.

**Mimusops.** A gigantic tree, the timber of which is valuable; sometimes called "Cow Tree," as it yields a cream said to be wholesome, but this I think doubtful. Nat. order, Sapotads.

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**Nicotiana.** An immense variety of these poisonous plants, from the *tabacum* to *giganticum*, rising to a tree of 15 or 20 feet.

**Nolanda.** Pretty little creepers with bell-shaped flowers; a native of Peru.

**Norantea.** Handsome evergreen shrub.

**Nectandra**, or Greenheart. See specimens in Lima; according to Wallace, common on the Rio Negro.

**Neodryas.** One of the many epiphytes; purple; growing in the forests.

**Oca.** The tubers of oxalis eaten like potatoes; plentiful on the wayside from Pasco to Ambo.

**Ochroma.** The light wood of which we formed our balsas (rafts); growing plentifully by the river side.

**Œnothera.** (Evening Primrose.) Herbaceous, native, and annual variety.

**Opuntia.** A very curious group of Cacti, growing in tufts upon the highest plateaux. *Cochinillifera*, abundant about Tarma.

**Old Man's Cactus.** Near Ambo. *(Cereus Senilis.)*

**Ornithogalum.** A kind of Star of Bethlehem lily.

**Oxalis.** Numerous varieties of woodsorrel.

**Olea.** The olive, though not a native, produces abundance of first-rate fruit; never tasted finer.

**Oleander** is also an exotic, but thrives luxuriantly.

**Oranges.** In great perfection at all seasons.

**Orchids.** "These flowers," said Humboldt, "sometimes resemble winged insects, sometimes like birds; the life of a painter would not be long enough to delineate all the magnificent orchidaca which adorns the mountain valleys of Peru." While *en route* for Ambo, we met a collector who had succeeded in gathering together from 400 to 500 varieties of these highly-prized flowers. No botanist could desire a more magnificent sight than some of the huge trees on the Perené and Huallaga, the trunks and arms of which are laden with orchids, mosses, lichens, ferns, and Vanilla in the greatest possible profusion and luxuriance. The Odontoglossum variety seems especially rich and plentiful.

**Palm.** Peru is particularly rich in palms. The wax palm (Ceroxylon) is the loftiest, rising to a height of from 160 to 180 feet; as a contrast others are stemless (Nipa). Between these two there is an immense variety of feathery canes, and the more majestic specimens of this noble family.

**Pampas Grass.** (Gynerium.) Occasionally to be seen, but not very common.

**Passiflora.** A great wealth of these beautiful creepers, with their lovely flowers and luscious fruit; varying in size from a pigeon's egg to 8 lbs. in weight. The Granadilla and Pomme d'Or may both be seen in perfection at Huanuco, also at Truxillo.

**Pentlandia.** (Amaryllids.) Peruvian bulbs.

**Perilomia.** Evergreen shrub.

**Pareira Brava.** Woody climber; extract used as a tonic.

**Persea gratissima.** The much-esteemed Avocada pear—sometimes called Alligator pear; eaten at every meal in Peru when obtainable. The Ceylon variety poor in comparison.

**Pereskia.** Allied to Cactus. Sometimes called Barbadoes gooseberry.

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**Petunia.** Our well-known garden flower in great variety; allied to tobacco—the Brazilian name of tobacco being "petun."

**Peumus boldus.** Otherwise called *Salpianthus.* A near relation of the "Marvel of Peru," but valued chiefly for its scented evergreen leaves.

**Phycella.** Beautiful little Amaryllid, which might be cultivated like tulips.

**Piper.** Our pepper, of which there are several varieties, but amongst the Chuncho Indians the best known and appreciated is the *Piper Methysticum,* from the root of which they prepare their *Kava,* by chewing it and ejecting the saliva into large bowls, allowing it to ferment. Ugly old women are constantly employed in the manufacture of this delicacy.

**The Pepper Tree.** (Schinus Molle.) So much admired in Australia. Is one of the most beautiful indigenous trees in Peru, seen in great perfection near Ambo.

**Pitcairnia.** (Bromelworts.) A herbaceous perennial with scarlet flowers, growing near Lima.

**Platyloma.** One of the characteristic ferns of the Perené Valley.

**Plumeria.** (Dogbanes.) Evergreen trees, about 20 to 25 feet in height.

**Polianthes Gracilis.** A lily, plentiful around Tarma.

**Podocarpus.** (Taxads.) A Chilian tree, but common in Peru; evergreen; cone-bearing; 40 to 50 feet high.

**Porliera.** An evergreen shrub; the peculiarity of which is its sensitive leaves always closing on the approach of rain. (Bean Capers.)

**Portulaca.** A tuberous rooted evergreen, as its name implies, carrying a milky juice; flowers of various colours; growing in arid places; and used as pot herbs.

**Potato.** The world has been indebted to Peru for many of its choicest vegetable foods, chief amongst which is the Potato; cultivated by the Incas under the name of "*Papa*" for centuries before the barbarous conquest.

**Pteris.** The *bracken* is in Peru, as everywhere else.

**Puya.** (Bromelworts.) Herbaceous perennial, with yellow flowers.

**Pyrolirion.** The flame lily; indigenous to Peru; golden flowers.

**Physalis.** (See Cape Gooseberry.)

**Phaseolus.** The Lima bean.

**Poinsettia.** Adorning with its scarlet bracts every plaza in Peru, as it does every tropical garden; few plants are more striking to a stranger.

**Parasites** are the unique feature in Peruvian vegetation. To see a noble monarch of the forest, whose huge trunk and arms are covered with shining Tillandsiæ and a whole host of climbing plants, while high up amongst the branches are brilliant orchids, contrasting with the dark green foliage, is altogether a very marvellous, interesting, and beautiful sight.

**Phytelephas.** Ivory nut palm; abundant in the Perené valley; yielding the nuts from which we now get our "horn" and "ivory" buttons, &c.

**Paullinia.** (Soapwort.) Moderate-sized evergreen, yielding the *guarana*; used both for food and physic. Another variety of the same gives us our walking sticks called "Supple Jacks."

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**Quillaja.** (Rosewort.) An evergreen shrub, the bark of which is valued as a hair wash, and to remove grease from cloth; a hardy-looking plant.

**Quinoa.** Important article of food amongst the Cholos on the mountain slopes of Peru; the seeds of *Chenopodium.*

**Quassia.** Rather rare, but the tree is occasionally met with in the upper valleys of the Amazon. (Simarubea.) Named after the slave who discovered its use as a poison for flies and a substitute for hops.

**Randia.** (Cinchonads.) A roundish-leaved, white-flowered shrub; abundant in the Montana.

**Rauwolfia.** Another common shrub of the *Dogbane* order, with yellow flowers.

**Retanilla.** (Rhamnads.) Dwarf shrub, with yellow flowers; indigenous to Peru.

**Rubus.** Several very beautiful and prolific varieties of the *Bramble* growing around Metraro; now introduced into Ceylon by Mr. Clark.

**Ruellia.** (Acanthads.) A blue-flowering herbaceous plant, rising about 3 feet; Montana.

**Rue.** There are several varieties of this bitter and strong smelling shrub.

**Rhatany Root.** (See Krameria.)

**Rushes.** Around the lagoons there are gigantic rushes—"Juncus" and "Scirpus"—which, when tied together, make boats or balsas. The Cholo fishermen at Santa I saw going to sea in these curious crafts.

**Roses** are quite a passion with the Limians, and many fine varieties are cultivated in their gardens; may be said to be their national flower, as Rosa is their Saint.

**Salix Humboldtiana.** One of the most beautiful of our willow trees; common at moderate altitudes.

**Salpianthus.** Allied to Marvel of Peru.

**Salvia.** Both red and blue in great profusion.

**Schinus Molle.** (Terbinths.) A kind of wine is made from the pungent seeds of this very beautiful tree. (See Piper.)

**Sciodaphyllum.** A pretty large-leaved climber of the Nat. order Ivy, with yellow flowers.

**Scutellaria.** (Lipwort.) Scarlet flower.

**Smilax.** This gives the Sarsaparilla of commerce. A creeping, rather prickly plant; several varieties; most abundant in the Amazon valleys.

**Siphocampylos.** Allied to Lobelia; bright scarlet flowers.

**Siphonia.** The best india-rubber is obtained from these trees, the chief home of which is in the Amazon valley. The collecting of rubber is simplicity itself. A tree yields from 2 to 8 gallons a year.

**Solanum.** (Nightshades.) The number and variety of Solanums, for which we are indebted to Peru, are past being computed: from the lovely little creepers, cultivated only for the flowers, to the now universally appreciated potato—from the microscopic weed to the giant tree.

**Stenomesson.** (Amaryllid.) Bulbs, producing beautiful yellow flowers.

**Sarmienta.** (Gesnera.) A creeping red flower.

**Schlumbergia.** (Bromelia.) A perennial, with pretty greenish-white flowers; on the Andes.

**Senecio.** A peculiar variety of groundsel called *Farris's*, with yellow flowers.

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**Sobralia.** Another of the numerous orchids with pink flowers.

**Spathiphyllum.** Nat. order, Araceæ; evergreen herbaceous perennial; growing in moist, hot valleys.

**Schizanthus.** (Figworts.) Elegant pyramidal flowers of various colours.

**Sanchezia.** (Acanthacea.) Sub. shrub; yellow, crimson; very choice; several varieties; in moist valleys.

**Syagrus.** A cocos-like palm, growing in warm, moist places to a height of about 20 feet.

**Swietenia.** The mahogany growing abundantly around the Metrero Patenas.

**Saccharum.** Probably nowhere else in the world does sugar cane grow to such rich perfection as on the irrigated lands near the coast of Peru.

**Tabernæmontana.** A very remarkable tree growing on the Perené, about 40 feet high, yielding good fibre, also good milk.

**Tasconia.** The Peruvian name of a beautiful and useful passion flower, lovely rose and scarlet flowers, and delicious fruits; it makes a grand greenhouse climber.

**Theobroma.** This well-known native of Peru yields a delightfully refreshing fruit—poetically "Food for Gods"—and commercially affords us our cocoa.

**Thibandia.** A kind of small-leaved whortleberry; Andes; pretty pendant flowers.

**Tecoma.** A showy *Bignonia.*

**Telanthera.** (Amaranthus.) Various; herbaceous.

**Tillandsia.** Peru is peculiarly rich in this epiphyte; its silvery foliage and beautiful bluish flowers adorn many a trunk and branch around Ambo and Matucana.

**Tradescantia.** (Spiderwort.) A dwarf annual with blue flowers, growing near Lima; also various kinds with rose flowers.

**Thunbergia.** These exquisite creepers are common in Peru; the *Laurifolia* with blue flowers around Lima; the pale yellow with dark eye along the roadsides in the interior.

**Tropæolum.** The Indian cress; often, but erroneously, called *Nasturtium.*

**Tangapoo** of the Tamils, with its golden pendants. In Lima gardens. [IXORA.]

**Tree Tomato.** (See Cyphomandra.)

**Tomato.** Now so well known. Is indigenous to Peru, but we have improved upon the original.

**Urceoline.** (Amaryllid.) Common amongst the undergrowth on the Montana; yellowish flowers.

**Urospatha.** Nat. order, Araceæ. A plant growing in the low country with peculiarly pointed spathe.

**Vaccinium.** Very like our blaeberry; growing up to 14,000 feet above sea level; also as a parasite.

**Vallesia.** (Dogbanes.) White-flowering evergreen shrub.

**Vanilla planifolia.** A parasitical orchid, chiefly valued for the perfume yielded by its pods—the Vanilla of commerce; these vines are abundant in the Perené valley.

**Verbenas.** In great variety; annuals and perennials.

**Violas.** Various; but chiefly very diminutive.

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**Vitis Vinifera.** Grapes either for table or wine, of a quality rarely produced in the tropics.

*V. Amazonica*, which we found growing on the Perené, was merely a pretty deception.

**Walnut.** Several undescribed varieties on the Perené.

**Warrea.** Nat. order, Orchid; abundant.

**Weinmannia.** Evergreen shrub, with white flower; low moist localities.

**Welfia regia.** A handsome palm.

**Witheringia.** (Nightshades.) Dwarf solanum; Montana.

**Xanthosoma.** Like Caladium, or Yam; yellow flowers; low marshy places.

**Xanthoxylon.** Sometimes called the toothache-tree.

**Xylopia.** (Anonads.) Bitterwood; evergreen shrub, with rough-looking unpalatable fruit.

**Yucca.** The Peruvian name of a well-known lily (Adam's Needle) growing abundantly on the slopes of the Cordilleras.

**Zamia.** Something between a palm and fern; in low hot localities.

**Zea.** Indian corn. Marvellously prolific in the valleys of the Andes; giving amazing returns, and with little toil affording abundant food and drink of the very best quality.

**Zinnia.** Nat. order, Asteracea.

**Zygopetalum.** Curious orchid, near Cascades.

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*April* 4, 1893.—Rev. Professor STEWART, D.D., *President, in the chair.*

Mr. JAMES CADENHEAD, R.S.W., communicated a paper entitled, "Some Popular Delusions from an Artist's Point of View."

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## *Some Popular Delusions from an Artist's Point of View.*

By JAMES CADENHEAD, R.S.W.

I propose to submit to your notice some observations touching certain avoidable popular errors whereby the difficulty felt by most people in apprehending the point of view or attitude of artists is persistently thrust into prominence, magnified, and perpetuated in an aggravated shape, causing misunderstandings and misconceptions.

The difficulty may be regarded as unavoidable, and it is in its nature formidable enough, since Fine Art is fine, so much so that it has been said with truth that fully to appreciate the achievement of a genius another genius is required. But misunderstandings and misconceptions are not unavoidable. And since the artist experiences no such difficulty in apprehending the popular point of view as is felt by the general public in apprehending his, it would seem probable that he may be in a position to encounter successfully a few of the errors from which these misunderstandings are wont to arise. That at any rate I should consider myself very fortunate could I succeed in. I hope to be able to give some idea of how artists feel on certain points which I have chosen, maybe with unphilosophic lack of method, chiefly because they are prominent and constantly come up.

The one who really ought to hold the balance on these occasions, when this difficulty emerges and there is danger of error, is the art critic. The artist is better left to express himself in his particular medium, whatever it may be, and when he allows himself to become articulate is not usually fortunate in his effects. Yet, if he is intelligible at all, he is probably more to the purpose, more instructive than the art critic, such as we are accustomed to.

The critic should be, and occasionally is, so intelligent, well-informed, and judicious as to be the trustworthy interpreter who can help to bring the artist's work into better contact with the public, who can mediate and guide. But too often his is no better than the

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voice of the "man in the street," and when he is not lavishing indiscriminate and conventional platitudes of praise, he is likely to be magnifying his self-constituted office of censor by equally impertinent essays in reproof and exhortation.

For a few minutes I shall direct your attention to art critics, and, as is only fair when the opportunity has presented itself of doing so, shall have something to say of them in the nature of criticism. If any art critics are present, I trust they will be patient with me. We have to be patient with them. Patience is the only resource of a painter who has to get accustomed, as most of us are at last, to have his most carefully expressed intention ignored, and to be commended for doing something that he has never thought of attempting to do, or, worse still, to be reprimanded for not succeeding in doing something he has carefully avoided attempting. At the hands of the critics the artists come out very much as the victims of Procrustes of old may be supposed to have appeared, decapitated, eviscerated, without a leg to stand on, or stretched beyond recognition, discovered, invented, all to make them fit into some scheme or system of æsthetics, how arbitrary soever or unauthentic, that the writer may have devised to please himself, or into no scheme at all, but merely perhaps to fit a certain place in a column.

The average man, were he to become aware of the actual value of most newspaper art-criticism, might take the trouble to form his opinions for himself. But he rarely does care to form his own opinions. He has them for a penny every morning. And, if he be interested in art and conscientious as well—no uncommon combination—he will very likely mark the passages that attract his attention, and go to the exhibition with the paper in his pocket, there naturally to see what he came to see, or to believe the fault his own should he fail. His confidence in what he reads in print is touching, would be tragic, were it not absurd. It may be objected that it is unfair to blame the newspaper critic for what may result from this, and that if the exhibition-goer is so confiding, the fault is his own. Well, no doubt it is true that, were the public less confiding, the newspaper writer would have to be more particular, would, in fact, have to inform himself upon the bearings of the subject he essays to treat. But it seems to me that, finding his public so simple as it is, prepared to take implicitly for gospel anything it reads in type, he ought to feel his responsibility all the greater. No doubt, if the manager of a paper, who sees that

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the public does not prefer good writing to bad, is tempted to promote the financial interest of the concern by employing the cheap writer, he is scarcely to be blamed for setting an incapable to work on reporting the Fine Arts, a department in which incompetence would have to be singularly conspicuous to attract special notice. And we should call that good "business" enough, from the business point of view. But we should think such a proceeding likely to promote the circulation of spurious coin of opinion; certainly not likely to simplify the difficulty I have referred to, that, namely, of getting the general public into a point of view that may make intelligible to them the way artists think and work, and think about their work.

True, some art critics have consciences that claim an occasional hearing. We know that from experience gained at private interviews and at press views previous to the opening of exhibitions. For instance, at one such press view, a journalist of considerable experience applied to a friend of mine, whose position as an artist enabled him to speak with great authority, desiring of him that he would, then and there, make known to him some reliable method of distinguishing between the pictures that were good and those that were not, explaining that, having undertaken to "notice" the exhibition, and being anxious to do what was right, he had become conscious of some misgiving anent his own capacity to discriminate. My friend made answer, regretfully, that he feared it was not in his or any man's power to do that which was required of him, and excused himself from making the attempt; explaining on his part that his own lifetime had hitherto been spent in an endeavour to acquire this knowledge of good and evil in art, to the end that with his own hand he might do good work himself, and that he knew not of any royal road to knowledge of art or of any other matter.

I suppose the writer went away sorrowful, and wrote quickly whatever came uppermost into his head. There were others present to whom their consciences gave no apparent uneasiness, who sought no skilled advice that I ever heard of, and they all wrote their "notices." What wonder then that the public never became aware of exceptional interest attaching to many of the works then for the first time exhibited there? I think they never did, for certainly they never showed any exceptional interest in that exhibition.

On the whole, if the right thing cannot be written about exhibitions, it would be better that nothing at all should be written, and

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people be left to form their conclusions for themselves—a thing they might very well do—since no work of art requires explanatory description in print, or even a name. But if that may not be, and if all the newspapers in the country must publish information about the exhibitions, then by all means let the writers employed take the affair at least as seriously as he did whose case of conscience I have just presented to you.

Let him who assumes the function of a critic qualify himself to be a judge before he proceeds to pronounce decisions that must make or mar reputations. For it is a power nothing short of this that the confiding attitude of his public has put into his hands, and it were well for him to take a serious view of such a responsibility. A little consideration will enable him to discover that, in order to have an intelligent opinion about the value of a work of art, he must get as far into the mind of the artist who produced it as will permit him to grasp the intention of the work; to discover, in fact, that in order to judge he must be qualified to appreciate. To appreciate an artist of any accomplishment he must be so far intimately acquainted with the past in art as to be able to detect and analyse the various influences under which the artist has chanced to come, and to disengage and examine intelligently the individuality, or personality, if any, that he displays. He must be able to distinguish a disciple from a plagiarist, to discriminate between natural originality and affected eccentricity, between reticence and vacuity, refinement and vulgarity, temperaments warm and cold. This is but the A B C of criticism. To appreciate what comes before him he must be able to do thus much at least. You may say that this would require an education. Assuredly it would. A man must be educated at least thus far before he can begin to be of use as a critic. Being in a position to appreciate a picture he could now give an intelligible description of it. He could afford to express himself about it in ordinary language, and he would not treat us to the terrible inventory-taking, of which consists so much of the usual picture description to which we are accustomed, an enumeration of all the objects whose semblances can be recognised within the frame. It is like filling in some schedule we are familiar with, the foreground, middle-distance, distance, a phrase for the colour, a word for the sky, and, if there are figures, a circumstantial account of what they appear to be employed about.

Here a word of explanation, confidential. When a landscape painter makes use of a figure, he usually does so because he has need

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of a spot just there, of whatever colour, and a man or a woman may be almost anywhere, and of any colour, so they appear. But the average spectator commonly takes a great deal more interest in the figure, and what it is about, than in all the rest of the picture put together. You may paint, say the south-west wind, if you can, seven feet long, cloud Titans marching overhead in silver and white armour, and white horses careering in blue sea-ridges below, miles of them; but if you mean to exhibit it, you had better put on the horizon a steamboat, it need be no bigger than your thumb, and call it the "Newhaven Packet." That will float your seascape for you, and give you a good chance of having a little crowd round it, and the art critic is almost certain to notice it.

But I anticipate. I mean to come to the average spectator immediately, the plain man, "*paterfamilias* on art," who doesn't understand art, but knows a good thing when he sees it.

When the student of criticism has arrived at the capacity to appreciate, he is in the way to qualify, with further education, for the really responsible office of critic. Thus far his whole attention must have been devoted to the study of his subject. To be a critic he must study himself as well, learning to keep steadily in view his peculiar function, and to eliminate the personal element from his deliverances as much as possible, never forgetting that the public relies on him for guidance, while artists rely on him, not certainly for guidance, but rather for support or protection. If he allow prejudice to influence him he will be a liberal or a conservative in art, in either case an unprofitable critic, though possibly an interesting writer.

The distribution of praise and reproof is the last function that the critic ought to undertake, and that only when he has finished his task of qualifying himself to exercise it with a sense of the responsibility that attaches to it. For out of his mouth proceed the issues of life professional to the artist, or of death as the case may be, and, if he be able to rise to the occasion, the interests of art and artists cannot be in danger in his hands. Thus trained, the art critic would be on the side of art, no longer, at any rate, encamped with the Philistines, or outsiders, and to him the artist on the one hand, and on the other everybody else, could look hopefully to be delivered from the danger of mutual misunderstanding. And if he devoted his time to clearing away the delusions of the general public about art, he would be a benefactor to the plain man I mentioned a few minutes since.



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When I say the plain man, I mean the outside public, all who are not artists in some shape, in letters, or music, or decoration. To call a man an outsider or a Philistine is to insult him. But anyone who has ever felt a suspicion that the arts are something in the nature of a conspiracy got up with a view to mystify him, will probably not object to the designation of plain man, as describing his relation to the artists, the *mystificateurs.*

The plain man is, so far as art is concerned, most difficult to deal with. He is in a great majority, and is the one who has most delusions. He will tell you candidly that he doesn't know anything about art, and goes on without pause to inform you that he knows what he likes, and can be trusted to tell a good picture from a bad one. That is his characteristic faculty. You can tell him for a plain man if he has it. He may be anything, a judge, a clergyman, a professor of any or of all sciences, priest or publican, soldier, sailor, tinker, tailor, anything; you can know him for a plain man if he lays claim to that remarkable faculty. He really does not know anything about art, and he is mistaken when he says he can tell a good thing from a bad one: for, though conceivably he may prefer, upon occasion, a good thing, it is impossible that he should know it. He does not discriminate, though somehow he is almost certain to have an objection to any work an artist is likely to care about. And the finer the art the more he feels it necessary to record his protest.

Here is a very fine Corot. "I cannot understand," says the plain man, "what you artists find to admire about this." And he actually expects you on the spot to explain the beauty of the Corot to him. "It does not tell a story," he objects, "and how will it elevate the masses? You don't mean to tell me that you consider it natural? It is too gray, and too misty, and is that a man or a woman? And can you make out what he is doing in the boat? Mind you," he proceeds, "I don't profess to be a critic, but if this sort of thing is fine art, I'm very much mistaken."

Well, he is very much mistaken, but the difficulty that concerns us is how to let him know that, how to indicate to him that here is something in relation to which he is an outsider. For this ignorance is unaware of its own existence, and merely to tell him he is ignorant, however authoritatively, will not convince, far less enlighten him. The appeal of the plastic arts is to a man's emotions through his senses, but this man's senses are seemingly

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deficient, or in some way inoperative. He is asking you to persuade him to feel emotion, for here he is expecting you to explain Corot to him in such terms as he can understand. He has made some such inquiry as this every time an opportunity has presented itself to him of having a talk with an artist, and on each occasion he has failed to be enlightened. It has never occurred to him to ascribe the misunderstanding to any deficiency of his own intelligence. He has noted only what he has taken to be great difference of opinion among artists, upon what, after all, is really not to his thinking an important matter, but a matter of taste. "There is no accounting for taste," is a motto that suits his humour. He adopts it. He comes to imagine that good taste can give no better account of itself than bad taste, to doubt if there be any difference between them. He has heard some talk of canons of art, and asks you, "What are your rules?" and, since you cannot tell him anything on the subject that he can take in, he forms the opinion, so familiar that we have almost forgotten to be annoyed by it—"You artists are incomprehensible, you give such different explanations of the same thing, and talk what seems to be nonsense." It seems natural for him to subside into a frame of mind, of which the suitable expression may be the formula I have indicated as characteristic of the plain man.

Actuated by a feeling of injury that artists should give themselves airs of superior enlightenment with so little tangible to go upon, he is liable at this stage to become aggressive. Whenever a chance presents itself he will be found trying to impose on his artist friends his common-sense views of art, bidding them bear in mind that, after all, whatever their notions may be, it is the pleasing picture that is really wanted, and that he himself, the plain man, is the one that must be pleased. And so he will talk about popular art, will declare that exhibitions must be made popular and attractive, full of pleasing pictures, such as will gratify the people, and interest the mob; and to the best (that is, the most pleasing) picture he will give a medal, having ascertained its identity by a plebiscite, and so on. Here surely are misunderstandings and misconceptions enough to go on with. I shall try to deal with some of them by touching on them from the other side, giving an idea of how they strike an artist, or at all events one who knows the artist's point of view.

Now, I must not call the plain man an outsider, though it were no wonder to find him such, and there is no very great reproach to cast on him for being badly posted about a subject so delicate and

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so beset with difficulty that it was said by a great painter, whose advance was stopped by the weakness of old age, "Alas! and this is just when I begin to see the possibilities of my art," and so wide that the most advanced are but students to the end of their career. The trouble is so to set the matter in the plain man's view that he shall realise its delicacy and importance.

He must cease to be a plain man if he would not be an outsider. At any rate it is not in his plain character that he need expect to enter the "Enchanted Ground," nor need he look to guide his steps therein by the light of common sense. The matter-of-fact person must cease from his matter-of-factness, until he come to find out the existence and use of the uncommon sense, whereby he may be convinced of certain matters that are neither self-evident nor susceptible of superficial inspection, but which are to be seen by the seeing eye alone, and heard by the hearing ear only.

Let me direct your attention to some of his more striking delusions. He sometimes says to an artist: "Yours is a most enviable occupation. You just go out and paint what you see before you, and there you are with a hundred pounds in your pocket made with uncommon little trouble." That to apply paint to canvas is easy scarcely amounts to a delusion, and none but an artist can reasonably be expected to know the kind of difficulty involved in that proceeding. What confronts us here is the "imitation of nature delusion," a really imposing one, involving the assumptions that nature can be imitated, has to be imitated, and is easily imitated. Now, the amount of imitation possible in art is so very insignificant that it may be asserted broadly that nature cannot be imitated by art, and if I can show ground for this assertion the other two assumptions vanish, that nature should be imitated and is easily imitated.

Nature I speak of in the usual sense, as meaning all of the human environment that the human senses are capable of making their owner aware of. As much of nature as can be seen is at the disposal of the painter as the magazine from which he is free to take what he pleases as his means of expression. He is free to leave what he does not require to use. The materials of which he has to make his work of art are as much of nature as he can fashion with form and colour according to his will. By means of what is visible and tangible he expresses himself. Observe that it is himself that he expresses. Nature he represents only in so far as may be necessary to enable him to express his attitude toward his environment.

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The character of this attitude is of supreme importance, for upon it depends the interest or import of the work of art. The work of art may be regarded as a product resulting from nature acted upon by the man. Nature and the artist are brought together, and the result is a work of art. Its import is apprehended by other men in virtue of the power of sympathy they possess.

Thus art is founded in nature, but not to be confounded with it, founded as much in the artist, exhibiting to other minds the attitude of the artist's mind towards the universe surrounding him and them. Imitation of nature, for a moment considered as possible, is thus seen to be superfluous. Not nature, but what he thinks he sees is what the see-er will give you in his picture. Insight is his faculty, and cultivated perception is his characteristic, not merely the eye-sight trained by practice to see appearances so fine and rare as to be undetected by ordinary vision, but rather perception capable of generalising so as to see masses, capable of grasping whatever is essential in its field of action, that can see nature transformed into oil paint, if he paints in oil. The artist has at the very outset as a student found out the practical impossibility of imitation with the means at his disposal; later he will have comprehended how, were imitation possible, it would be for the artist to purge his work of it, that he might devote his energies to expression.

This estimate of the artist's relation to nature is novel to the plain man, who, so to speak, believes in nature, and has been accustomed to announce as his philosophy of art that the best picture is the one that imitates nature best, and the best painter the one who makes the best imitation of nature. Now nature cannot be imitated, because a spot of sunshine on a dark tablecloth is much brighter than the brightest patch of flake white you can put beside it in the shade. And flake white is all you have got when you want to paint the sun at noonday. All down its little scale paint is foolishly inadequate if you consider it as a means of making an imitation of the universe you behold around you. Much may be done with it, but not this. But the plain man has not gone into this aspect of the matter, and has never thought enough about what he thinks he has perceived as to the situation in which the painter's art would be if to imitate were possible, and also desirable or necessary.

The absurdity involved in confounding an artistic proceeding with an imitative one is not far to seek in any place where, however

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cleverly, an attempt has been made to produce an illusion. The thing is never a success. The eye may be satisfied, or rather entertained, but the ear or the nose will protest. Suppose it a success. It would be indistinguishable from nature, and the personal element would be entirely absent, as would be any trace of interest of an artistic sort. So dependent for its interest is a work of art on the personality of the artist that it would not be going too far if one were to affirm that, of course provided an artist has produced it, the less the picture resembles nature the more interesting it will be. Some such proposition may be expected to emerge before long as the logical result of reaction from the realism so long imposed upon the arts.

Some recent painters have done wonders in the way of showing how much imitation amounting to eye-deception may be possible with the materials at the disposal of the painter. They have carried the imitative resources of oil paint, such as they are, as far as it would seem possible to take them. No one can fail to be impressed with the ability in this direction displayed by modern realistic painters, least of all those who are aware of the nature of the difficulty involved in adapting the inadequate scale of paint to the full scale of nature, something like, let us say, one to ten, which is an understatement. Where nature says ten the painter's palette limits him to one. And when under these conditions, you nevertheless find him succeed in making anything approaching an imitation of an effect of sunshine, you are bound to recognise that he has done something really very clever. But the process by which these results are secured is essentially a scientific one, wherein nature and the painter's means of imitation constitute a problem whose solution is to be laboriously worked out, so as to make $2 + 2 = 40$. Impossible of course, as we saw, but scientific. And extremely uninteresting because so very impersonal. For the painter here becomes but a more or less efficient machine for recording observations.

In order to have an idea of how observant some modern realistic painters are one has to be very observant oneself. At any rate they see so much more than our plain man that their works are a hopeless enigma for him. That is not how he sees nature. He cannot admit that these are pleasing pictures. Well, of course, he cannot tell how clever these things are. He is not nearly observant enough. But the point I wish to bring out is this. That the sort of interest,

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scientific interest, that this kind of work has, constantly escapes him. The nearest thing to the imitation of nature in which he believes that can be done is passed before his eyes, and he remains unaffected, unstimulated even to astonishment.

It is in this way that anyone possessed by the delusion of imitation, and brought into contact with works of Fine Art, is liable to be impressed with what he will take to be their gratuitous and aggressive untruth. Any work which seems to him to be unlike those which he has been accustomed to consider pleasing pictures, as well as unlike his notion of nature, he will consider peculiarly offensive. Such a picture will be full of interest to one who is at the artistic point of view. And so we find that the plain man's powers of discrimination lead him only to dislike what artists admire.

To remove the misunderstanding he must divest himself of the delusion of imitation: he must put away his matter-of-factness and cease to be a plain man. That were a consummation worth the attaining even at the cost of much exertion. To find out the use of a hitherto unsuspected sense; to have the key to an "enchanted garden"; to see there, not it may be truth, but what is visible of it, beauty; to be able to say, "Whereas I was blind now I see": surely this were worth a struggle and perhaps a little humiliation of spirit. To reach such an "Enchanted Ground" as this were surely worth a pilgrimage.

Forth from the "Cities of the Plain" the man must come, and leaving his merchandise, come flying light with none but spiritual baggage. So shall the climb be the easier for him up the "Delectable Mountains." He shall have refreshment in the purer air, and freedom and good company. No one shall teach him there, and none shall make him afraid. Here shall he see no enemy, no lion in the path. All the finer, sweeter spirits of all times are there for his companions, poets, singers, artists. He needs but to purify himself from vulgarity and money-grubbing, and all the charmed world of art is at his feet, free for him therein to wander whithersoever irresponsibility may direct his steps.

For the artist is irresponsible. The conventions imposed on him by the nature of his materials are the only conventions of necessity imposed on him. To decorate is his function. You shall know him by the touch of his hand, the turn of his verse, the tone of his violin, the majesty of his building, the propriety of his speech; in all he does or says the seeing eye or the hearing ear detects the artist.

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The artist faculty in the man is responsible not for the matter, but for the manner. What he says is indifferent, for you judge of the artist in him by the way he says it. Be it something very trifling, or something very deep, simple or subtle, profane or religious, he shall answer for the substance in some other court, but by the mode you judge the artist. You ask not, "Is it a good thing to do?" but "Is it well done?" not even "Is it worth doing?" but "How does he do it?"

> "The poet gathers fruit of every tree,
> Yea, grapes of thorns, and figs of thistles he."

says Mr. William Watson, in an epigram which indicates the artist's function in a very happy way.

Moral irresponsibility is not claimed for the man. But we assert that the net the artist fishes with has a mesh small enough to catch everything, and that all is fish that comes into it. All honour to the noble inspiration, the religious exaltation, the patriotic fervour, and the enthusiasm for social, industrial, political, and all other perfection, only let us not imagine that a man actuated by any or all these great motives to action can thereby be justified should they lead him to perpetrate an artistic crime. As an artist he is not responsible for his motive, but for his performance, and by it alone must he stand or fall.

Here we have come to another root of bitterness, a misunderstanding, the idea that the artist ought to teach or preach, or at least have a story to tell, and this I may be allowed to call the "literary delusion." The prevailing impression according to this is that the artist ought to consecrate his powers to the promulgation of some sort of propaganda; that the greatest artist is he who devotes himself to the illustration of the noblest themes, of the sublime truths of religion, to the representation of the most stirring scenes of history, and so on down to the comparatively humble but still most touching incidents connected with the domestic affections. The claim is that they who paint such subjects as the "Temptation in the Wilderness," "The Sermon on the Mount," "Rebecca at the Well," "King Alfred in the Neatherd's Cottage," "The Doctor," and so on, down to "Little Miss Muffit,' "Kiss Mammy," and the latest "Academy Baby," should enjoy an estimation in proportion to the pretension of these subjects, and be considered great and popular artists. The artist who is merely

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decorative is relegated in popular esteem to a lower room and a merely subordinate sphere of appreciation.

The answer to this is simple, so much so that, to anyone not prepared for it, it may be offensive. But in the light of what has just been said it cannot come unexpectedly. Subject in a work of art is indifferent. The treatment, that is, the way the work is done, is of paramount importance, so that in comparison the subject becomes unimportant. Just as no nobility of subject can excuse inartistic treatment, so no subject is so trifling that in the hands of an artist it may not be nobly treated.

We must not, if we would appreciate a picture, endeavour to look through it at some human fact, some lesson, gospel, or philosophy. We ought to look at the picture to see what the painter has done. If it be a good one the fault will be ours if we do not apprehend its intention without a mental wrestle, and, if we do feel its influence, then for a time we tread the "Enchanted Ground."

For a picture is not a problem, nor ought it to be a puzzle. The finest pictures in existence are conspicuously simple. Yet the simplest of these will be a puzzle to one that shall set his wits to work to make out what it means or signifies, or whether it will elevate the masses, and to try to understand it. Mr. Ruskin is said to understand the works of Turner. But Turner did not understand them himself. He painted them. He was an artist and a great one, incapable in the simplicity of his heart of setting before his fellow-countrymen a series of problems and puzzles so obscure as to demand interpretation of Mr. Ruskin. The "Modern Painters," that marvellously elaborated essay on Turner, is to be regarded as itself a work of art of the highest class, whose text is the work of Turner, but whose context is a system of æsthetics of the author's own, a work more able and interesting than any other of the kind in existence, for which we cannot be other than deeply indebted to Mr. Ruskin. But the man whose senses are obtuse enough to miss the intention of a good Turner is probably furnished with an intellectual skin so thick as to be proof against the impact of Mr. Ruskin's eloquent periods.

Even given an active intelligence, you cannot by intellectual process persuade a man to feel. To one without the faculty of sympathy a picture is but a document in an unintelligible language. Incapable of appreciating the form, he devotes his attention to the

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matter, and it will not be strange if to him the best picture is the one that conveys the most information. At least he can appreciate conscientiousness in elaboration of detail, and if the canvas be, as I read somewhere in a notice, "replete with evidence of painstaking devotion," that is to say, laborious application to the accumulation of facts, he looks upon it with respect as one does upon a learned treatise. Therein he is very much out of touch with the artist, to whom such conscientiousness is abhorrent, so that he would fain obliterate from his work all trace of laborious effort and painstaking. He does take pains, but it is to efface the traces of his painstaking. Mr. Whistler tells us that a picture highly finished, as finish is commonly understood, is unfit to be seen.

Look into the Pantheon in Paris, and the wall decoration there by Puvis de Chavannes. The subjects there are imposed on the artists, and the paintings by Puvis de Chavannes represent incidents in the life of the patron Saint of the Church. The artist is one of the great ones, and see how he has triumphed over the necessity of being explicit in regard to matter of fact. How simple in his hands is the setting of the scene; only the indispensable is here. Nothing is dragged in. But how impossible to alter without marring the whole one foot of the great arrangement in pale grays and greens and browns, and round golden haloes, so apparently effortless and simple, so perfect the art concealing the art.

In another part of the Church, in a similar wall space, is painted the death-bed of the aged Saint, by Jean Paul Laurens. Mighty strong work it is, with crowds of life-sized people sharply characterised, the story told *à l'outrance*, no detail spared that could be introduced, and with emphasis in every touch. But the picture is not decorative. You scarcely feel that there is any wall before you, so much of illusion is there in the picture. But it should have been decorative. To be a wall-decoration is the reason for its existence; whatever had to be done with the subject should have been done with a single eye to that main intention. You cannot but be struck by the number of difficult things the artist has here successfully done, but you wish the work had been given to Puvis de Chavannes instead of to Jean Paul Laurens. For the interest of the display, pathetic and magnificent as is the scene depicted, does not atone for the absence of what you miss, that is, the sense of the treatment proper to the conditions of the work, to which the work of Puvis de Chavannes owes its peculiar charm.

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Of these two wall paintings there is no doubt which is the more popular. Visitors pass that of Puvis de Chavannes, and pause extremely interested in that of Jean Paul Laurens. But when the others have gone the few who remain in the church will be found before the work of Puvis de Chavannes. And these are they to whom it is given to distinguish refinement from vulgarity. The pity is they are always so few.

To this assertion that subject is indifferent the objection is very often taken, that artistic treatment plus nobility of subject must amount to something better than either could be alone, and that therefore it must be better for an artist to occupy himself with the depicting of great deeds, and the illustration of noble sentiments. Thus art is to conspire with religion, with literature, and with philosophy, and the artist is to have a mission, which, while reflecting on himself the credit of being not merely an artist, but a priest, a teacher, and a sage, will ennoble his art.

The idea here is that art to be noble must be useful, a utilitarian idea founded in a delusion that beauty is of no use, and that nothing is of use save what can be shown to edify, instruct, and admonish. Beauty, in this view, must justify its claim to exist, not on its own perfection, but on proving its power to assist in what is called the march of enlightenment, in simple language education, or in the current phrase, the elevation of the masses. Beauty is to hew wood and draw water for the schoolmaster. For a thing of beauty to be a joy for ever is scarcely respectable from this point of view. Beauty, the jade, must work for her living, or else she will be rather a disreputable character in utilitarian estimation, not to be taken seriously by a practical age. So she is expected to ennoble herself and save appearances, by an alliance with religion, patriotism, the domestic affections, and whatever is moral and didactic.

This sounds so good that it ought to be true. It is fascinating to the philanthropic. The exponent of this theory has the advantage of assuming a meritorious pose as friend of humanity. But he assumes too much in taking for granted that the artist, in fashioning his work, can have, with regard to it, any other intention of any relative importance save that of making it as perfect as he can.

Tennyson's moral in the "Day-Dream" is very much to the point in this connection, as indicating the relation between art and

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morals as it appears to the artist. We may suppose the "Day-Dream" to be a picture:—

"So, Lady Flora, take my lay,
And if you find no moral there,
Go, look in any glass and say,
What moral is in being fair.

"Oh, to what uses shall we put
The wildweed-flower that simply blows?
And is there any moral shut
Within the bosom of the rose?

"But any man that walks the mead,
In bud, or blade, or bloom, may find,
According as his humours lead,
A meaning suited to his mind.

"And liberal applications lie
In Art like Nature, dearest friend;
So 'twere to cramp its use, if I
Should hook it to some useful end."

In these short verses, Tennyson, than whom none has better authority to speak as an artist, expressly refutes the theory that a work of art needs a justification for its existence, on moral or other grounds of utilitarian sort.

Keats has told us the use of beauty in that exquisite passage so well known, "a thing of beauty is a joy for ever." Nothing short of that is the use of beauty, to be a joy for ever. To be beautiful is more than a sufficient justification for the existence of a work of art. It is the only justification for its existence.

In default of a definition of art, which is still to seek, someone has happily described its aim, "The aim of art is its own perfection." Mechanical necessity makes every picture a representation of something, and artistic necessity prescribes that it shall be beautiful. That is all the artist knows. Give him paint, or whatever he can use, and set him to work. The result will justify his efforts, and you shall not be the losers, though you may not see how the work he will produce is going to promote the progress of enlightenment, the march of the intellect, or the improvement of the condition of the poor.

But do not insist that he shall teach or preach. We have preachers. Why make art take sides and argue? Nobody expects an auctioneer, for example, to make his desk into a pulpit and hammer conclusions into his congregation. When he does so no

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doubt everyone present is highly diverted. But he is not expected to do more than one thing at a time. Let us give our artists as much liberty as they are inclined to take. Enough of necessities and conventions are imposed on them for all time by the nature of things, the intractability of material, the cares of this world, and the deceitfulness of riches. We need not set them tasks, or make them grind corn for the Philistines. The Fine Arts are not a means to an end outside of themselves.

Moral excellence is not an attribute of any work of art. Take any picture that is considered to be a moral work (we have seen some described in print as "painted sermons"), and you will find that you cannot "give in," as Whitman would say, that it is any the better a picture on that account. Hogarth was as much interested in human nature as he was in painting. To the student of human nature his works are as interesting as they are to the artist, but on wholly different grounds. And Hogarth is responsible for numerous painted puzzles and conundrums on canvas that fatigue and exasperate the lover of beauty. To his example, in the first instance, we owe the kind of picture that nowadays in the Royal Academy's exhibition requires a rail round it for protection, and two policemen to make the crowds pass on. "The Road to Ruin" may be regarded as setting forth a tale with an edifying moral, but this admission does not strengthen the case for the didactic theory, because the painter in this instance has put so little that is artistic into the pictures that on their merits as art they could never have attracted notice. You cannot call them works of art. They are moralities in the flat. The same phenomenon recurs persistently enough to convince us that mere coincidence is not concerned, that accident is not enough to account for what is to be observed constantly, viz., that whenever one finds the endeavour seriously made to produce moral and didactic results by means appropriate to works of art, there one is sure to find the artist power defective. Hence come the popular pictures we all know so well, pictures of the year, from the vulgarly sensational to the merely namby-pamby. They all appear to rely upon their subject to ennoble their art, or rather their lack of it.

The aim of art is its own perfection, and it does not require to go outside of itself, or into the region of morals, for the means wherewith to accomplish its own perfection, any more than it requires to plead good intention or high religious and philanthropic

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motive for its sanction. None will, I trust, mistake this claim on behalf of art to a non-moral sphere of activity for a claim to exemption on the part of artists from moral responsibility in regard to their doings. Immorality is quite another matter. "It is one thing to take immorality for the express aim of representation and another to abstain from taking morality." I merely claim that the sphere of morals and the sphere of art are different spheres, not antagonistic to, but independent of each other.

And what is this beauty, which is the be-all and end-all of the arts? Many wise men have had the subject through their hands without result, as who should catch a butterfly. A butterfly displayed with a pin through its heart is like beauty in the hands of him who would make a definition of it. Beauty is spiritually discerned. According to Keats beauty is truth. But then none knows what truth is. Science has accumulated evidence enough to entitle some of its conclusions to be called truths, but the question once asked, "What is truth?" was never answered, and truth as we know it is but relative. With beauty we connect the idea of absolute truth. Though we have no definition for either of them our perceptions are awake towards both. We do not fail to feel the power of beauty, its witchery, the spell that "charms us out of thought," its pathos that awakens those thoughts that do sometimes lie too deep for tears, when music has made our inmost heart-strings vibrate to the touch of some man's fingers on the tented string, or when those "tears from the depth of some divine despair rise in the heart and gather to the eyes in looking on the happy autumn fields, and thinking of the days that are no more." The happy autumn fields, seen, it may be, in a picture.

Call it beauty, or call it truth, give it any name you please, you do not miss the influence. Whatever it is, whatever its name may be, the influence of it has reached us all. We know what it is, what need to find a name wherewith to label it? We do not know what truth is, but we can recognise its beauty. And that I take to be the subject matter of art, the beauty of truth.

It does not come within the scope of my present intention to expound a philosophy of art. That is a large order—too much for anyone not endowed with an exceptional sort of talent, not specially trained, and furnished with information both extensive and difficult of access. To such as desire to obtain some insight into such a study I would venture to recommend Hegel's "Introduction to the

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Philosophy of Fine Art," wherein he who reads will of a surety find that there is accounting for taste, and that the study of Fine Art has received serious consideration by one of the most profound of modern thinkers.

I dare not venture to blame anyone who may shrink from entering upon any abstract and abstruse considerations such as are set forth in this Introduction of Hegel's, with which indeed very few artists are acquainted, so far as I know. All the more strongly, therefore, I feel entitled to insist that all who profess and are generally considered to be well-informed and educated people, should at least take pains to inform themselves as carefully concerning the Fine Arts as they usually do about the other departments of human activity. Yet not many actually do seem to feel such duty incumbent upon them. It is indeed a platitude to say that before delivering an opinion a man ought to consider whether his opinion be worth delivering. But said with regard to the subject of art it is not a platitude at all, and by a large majority of men may well be taken to heart as a useful hint to remember when that subject comes up, as it so often does.

We know that there are extenuations more or less valid for the prevalence of this indiscretion, and we can make reasonable allowances for it. Ignorance about art is peculiarly liable to be unconscious of its own existence, as we have seen, and to expose itself with all the refreshing *abandon* of innocence. We excuse it, pardon it freely, and humour it as one humours a child. Yet this kind of innocence lacks the charm of childish *naïveté*. One feels there is something wrong when one has to make large allowances for the simplicity of a mature person, who may possibly possess the ground we stand on, or control the financial interests of the community we belong to, may guide the affairs of the nation, and be covered with honour and glory. He tells us interesting things we did not know before, and if art comes up for discussion we are ready to return his benefits in such kind as we are capable of. And we try to do so. But he doesn't see it. He gives us his views about art, and we have to humour him.

I once came across a little book in which were set forth a number of precepts to be observed by such as might have occasion to be present at assemblages of polite persons. These were the "Rules of Etiquette":—Under no circumstances should such an one eat gravy with his knife, or arrange his hair with his fork, or even drink

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out of his finger-glass. If at any time he should dine with a royal personage he must be careful not to speak with his mouth full, and so on. In the matter of polite conversation it was laid down as highly essential that no one should venture to introduce as subjects for talk such troublous topics as religion, politics, and commerce, as being respectively too serious, too interesting, and too vulgar. Safe subjects were indicated, and these were art, the drama, and literature. Nothing was said about sport, at which I confess to have felt some surprise, because I should have thought that golf, at all events, was a subject that none need be diffident about entering upon anywhere, at any time, upon any consideration whatever. However art was clearly indicated as one of very few subjects upon which all might and ought to discourse freely at all times and in all places.

This, in contrast to the prohibitions with penalties attached to them, was a commandment with promise. If you keep this law you will be amusing and brilliant. The risk of being detected for a sham is inconsiderable, while the prospect of appearing clever, witty, even profound, is ever before you. Endeavour only to be funny, or if that be impossible, you can make a cheerful sound of words, so that at the dinner-table there may occur none of those flashes of accusing silence that make every one feel so uncomfortable. Be humorous, therefore, about the Academy. If an Academician's wife is your neighbour, she will very soon let you know; and then, if you like, you can have a shot at literature. It will not matter very much what you say about books. The harmony of the evening will be all right by that time. Only steer clear of religion, politics, and "shop."

Of course one must not take the etiquette book seriously. No one does. But all the same, though they may not be aware of it, a very large number of people do act as though it were their express desire to keep this law. A subject of engrossing importance, religion, is felt to be too serious for promiscuous discussion; politics are ignored as carefully; and, in the case of commerce, I suppose it is felt that where so many know so much there is danger for some of displaying ignorance, and for others of parting gratuitously with valuable information. One who should persistently discuss any of these topics would certainly be considered a bore.

Well, to those who may be inside of it, art is about as serious a matter as religion is to most people, it is not a less intricate subject than politics, as these are understood among us, and the danger of

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displaying ignorance in connection with it, is much greater than in the case of commerce, while the prospect of acquiring information about it is, in most assemblies of the polite, exceedingly slight. Why, then, the subject of art should be considered a safe one, while those others are forbidden, might seem difficult of explanation, except on the ground already indicated as affording a key to the plain man's delusions in general, *i.e.*, that few people are aware that art is a subject both delicate and complex. So far is this from being generally understood, that art is held to be a topic over whose discussion no one is sufficiently interested to display any warmth. Few are sufficiently instructed and vigilant on the subject to make it dangerous ground for an impostor, who, with the most slender equipment, may on it readily attain to a distinguished reputation for profundity; while to wits, wags, and all facetious persons, works of art offer irresistible temptations to the exercise of their most brilliant faculties.

I would venture to deprecate this latter treatment of it, without claiming for the subject of art such an amount of deference as would class it with religion and politics, and make its mention in general company an occasion for boredom. An art bore is one of the worst kinds, and, were it not that I feel myself liable to be considered an art bore just now, I should join the most unscrupulous of humorists in suppressing him at sight by all legitimate means of ridicule and invective. However, when we eliminate from a subject of conversation the moral and didactic element, we to a great extent disarm the bore. And I have endeavoured to show that this element is not intrinsic in the Fine Arts, so that particular provocation to boredom may well be eliminated from discussion of the subject.

Utilitarianism, applied in all directions, gives rise to widespread indifference to art, and deepens the gulf of non-comprehension that is fixed between people in general and artists. It gives rise to a delusion peculiarly well exhibited by commercial people, though by no means confined to these. They have a fixed idea that every man's main object in life is to make money. Since only artists can enter quite fully into each other's feelings, there is nothing surprising to the musician and the man of letters in the phenomenon of an artist in another medium devoting his energies to developing his ideal for its own sake, and considering the prospect of pecuniary gain as secondary matter. It is what all artists ought to do. But



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to the mercantile man this is usually incomprehensible. He cannot take it in. The artist who is not making money he holds to be a failure, since financial success is the only kind he can admit. The sort of interest he takes in art comes out in the question you may hear him ask—"What kind of prices is so-and-so getting for his pictures?" It is never—"Is so-and-so doing good work?" The number of people who look at art from this angle is so great that it amounts to a large, indifferent public.

The indifference, while it lasts, is mutual. So long as this mercantile measure is applied to the artist, he must be as indifferent as he can to the discomfort of doing without reputation, which it is hard to be, since reputation means bread and cheese to him. But unless he is prepared deliberately to set about making pleasing pictures, expressly designed to meet the requirements of the general public, to submerge himself, and go in for meeting the market, he has no alternative but to be indifferent to the impression his works may make upon all save those that are in sympathy with his aims. If it were once to take hold in the mind of people that, in electing to satisfy himself rather than please them, the artist chooses to attempt the more difficult task, then certainly the "mercantile delusion" would vanish, and much public indifference would disappear along with it.

In reference to this matter of indifference it is observed, and with apparent force, that there is something unreasonable in the attitude of the artist who, while he expects to make his living at the expense of the general public, declines to produce the sort of work this public is willing to look at, and even desires to possess. There seems force in the objection that he who pays the piper is entitled to call the tune. If artists describe their position as being like that of children sitting in the market-place and saying, "We have piped unto you and ye have not danced," it seems a valid retort to say, "Why don't you play a tune we can dance to?" Besides it is objected, "We do dance, and that in lively measure. The clatter of the turnstiles in Bond Street any summer afternoon bears audible witness to the energy of the movement." Well, after all, perhaps popularity may be a test of merit in a work of art. Undoubtedly some highly meritorious pictures have been popular. I shall not go into an argument on that subject, interesting as it is: but I may say that very few artists are of opinion that popularity is a test of [illegible] and in literature, probably only a few of the

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most popular authors would affirm the truth of such a proposition. But there is something to be said about the turnstiles in Bond Street. A human Pactolus flows along these London streets, bearing gold and silver, and wherever part of the stream can be diverted through a turnstile, shillings are precipitated, and accumulate rapidly. At and near Bond Street the valuable deposit is most frequent and abundant. To leave the figure, it is there the showmen set open the doors of their attractive exhibitions, into all of which the shilling public wanders indiscriminately, as bees will conscientiously visit every flower in the garden. Only the public, unlike the bees, is led by curiosity mainly, and by the strange impulse that in the spring time seems to impel all the world to "do" galleries, and lunch in the neighbourhood of Piccadilly. The Fine Arts are in season then, and it is the thing to do in London. The tune they dance to so actively is played by the astute middleman, the picture dealer, whose gallery is a trap to catch the nimble shilling, and whose interest in the arts is commercial, and unaffected by knowledge of, or regard for what is of real artistic value. The dealer need not know more than the veriest Philistine of us all about what is good and what is bad in art. What he may happen to like himself is nothing to him from his business point of view. He only need know what the plain man likes. The galleries in London are there to show how well he succeeds in hitting off the taste of his public, and how large a body of artists is prepared to play into his hands, and stifling the artistic conscience, to strive strenuously for popularity. The result is rooms full of pictures entertaining, diverting, sensational, and vulgar.

And with all that it is yet difficult to explain why so many thousands of people are to be seen thronging to look at these pictures, on any other supposition than that fashion prescribes this exercise to such as would be fashionable; and that thus, combined with other exercises of like nature, can these see and be seen of men, and provide themselves with table-talk sufficiently light and exhilarating. Why people go to see such plays as are constantly being produced in London and passed down to us, can scarcely be explained in any other way. Fashion, or force of example, decides what society will do, and the fact remains that for most people this or that is found to be amusing or interesting that other people profess to find so, over all the field of Fine Arts. An immense number of well-dressed people would yawn in each other's faces

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were it not for such god-sends as the Academy, the theatres, the Court, and the acrostics in "Vanity Fair." The dance is not so lively as it looks, being really a dance of marionettes, whose strings are jerked in lively measure enough by newspaper and magazine writers, who, being, as we have seen, commonly irresponsible, produce literature calculated to suit the taste of a public that seeks only the amusement of a summer forenoon.

This sort of interest in the arts is no better than indifference. It is indifference disguised, but not so well as to deceive anyone who cares to look below the surface. It is worse than open, unaffected indifference in that it is a sham, and encourages the prosperity of art that is no art, and has an unhealthy influence fostering the growth of a strong weed, that draws to itself nourishment appropriate to a finer flower, shouldering Fine Art out of sight, often out of existence. This common attitude of indifference to art the artist finds peculiarly distressing. For it deprives him of the support he needs most, of the only influence that can encourage him to work his best, the sense of sympathy, of touch with his fellow creatures.

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*January* 10, 1893.—Professor PIRIE, *in the absence of the President,* Professor STEWART, *in the chair.*

Mr. ALEXANDER MACKIE, M.A., communicated a paper entitled, "The Ludicrous in Burns."

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## *The Ludicrous in Burns.*

By ALEXANDER MACKIE, M.A., Albyn Place School, Aberdeen.

Burns has for a century earned almost hyperbolical praises as a great master of the ludicrous in its Protean aspects; yet, so far as I am aware, no serious attempt has ever been made to analyse or illustrate in any detail the multiform modes of this quality in his work. In this paper I make a humble attempt to scrutinise and classify his diverse effects, with as full an illustration as time will permit. There is a certain amount of temerity in attacking such a theme—a danger well expressed by Campbell in his "Rhetoric." "These effects are of so subtle a nature that they will hardly endure to be touched, much less to undergo a strict analysis and scrutiny. They are like those volatile essences which, being too delicate to bear the open air, evaporate almost as soon as they are exposed to it. Accordingly, the wittiest things will sometimes be made to appear insipid, and the most ingenious frigid, by scrutinising them too narrowly." In the face of this somewhat alarming signal of danger I might have avoided the subject, but for the conviction that a large part of Burns's fun is sufficiently broad and substantial to endure a subtler analysis than I am likely to apply to it. Besides, my purpose is not to bring you up to the level of being diverted by Burns's humour; you have been convulsed with laughter at his sallies more than once or twice, and you will doubtless remain capable of the same enjoyment still. My object is rather to provide a possible practical benefit, in so far as an analysis of the poet's arts, a peep behind the scenes, disclosing his mode of attaining these ludicrous effects, may facilitate our own endeavours after the humorous, in the case of those at least who have any ambition to shine in that direction.

Man is the only animal that can laugh. "There's some exceptions, man and woman," but in general, human beings make adequate



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use of this gift of nature. The occasions that prompt the exercise of our risible faculties are of many kinds, ranging from pure exuberance of animal spirits down to coarse and brutal derision and malignant contempt. It is not my purpose, however, to begin with building up any theory of the ludicrous, whence it springs, or how it has grown and developed; that is a very proper subject for philosophical enquiry and discussion, but it has been so thoroughly handled, analysed, and expounded by a distinguished member of this society, that we may leave it out of our survey. It suffices for our immediate purpose to say, that literature, which is but the reflection of what man thinks and feels, gives us illustrations of all forms of laughter, and that these effects have been designated under such names as ridicule, satire, comedy, burlesque, wit, and humour. The most usual names in this connection are the two last—wit and humour.

Here at the outset we are faced by a vexed question of distinction, over which a deal of ink has been spilt. The fact is, that one cannot always draw a hard-and-fast line between them, because they are frequently found in combination, and because they touch at many points. Indeed, they do not, properly speaking, form a genuine antithesis. Roughly, wit is a thing of purely intellectual origin—a feat of cleverness, ingenuity, and dexterity, the art of striking together two words or notions in a novel way that excites our surprise, its purest forms being puns and epigrams; humour, on the other hand, is a more diffusive quality, a constitutional peculiarity based on a state of feeling, rather than intellect—a degradation, without malice, of some dignified object or person with geniality, kindliness, and good-nature. Wit is best described by the well-worn metaphors of sparks or flashes; it is sudden, intermittent, a matter of few words. Humour, by the same metaphor, may be described as a glow of heat and light; it concerns the *spirit* or mood in which the writer approaches his subject. Wit is a cracker that bursts when we least expect it; humour is a genial fire at which we may warm ourselves in pleasurable mood. Some poets are neither the one nor the other. Some wits have been humorists; nearly all humorists have also been wits. Wordsworth is neither witty nor humorous; Pope is seldom humorous but often witty; Burns is less witty than he is humorous.

But, as we have said, the two effects, although different, are not complete antithesis, are not mutually exclusive, and a more logical

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contrast may be found by opposing the malignant or stinging spirit to the kindly and harmless mood. This would give us satire or ridicule as the direct negative to humour—wit being the auxiliary of both. Such an antithesis suits best in regard to Burns, because pure wit is not a great characteristic of his work. He never condescended to the more debased form of wit as illustrated in the pun, and although I shall try to give you some examples of pure wit, as a matter of fact his witty sallies are more generally *applied*, either to the purpose of stinging derision, or of humorous degradation, and being merged in these effects cannot easily be viewed apart.

My three heads, then, shall be:—

1. Pure wit—mere cleverness.
2. Ridicule or satire, or arts of derision.
3. Humour properly so called, free from painful effects.

1. *Wit.* The simplest form of wit, and the one most allied to the pun, that Burns adopts is the double or triple rhyme, but here he has been excelled by other writers. It was first brought to excellence by Butler in his "Hudibras;" it was used with skill by Swift and by Byron; and in our own day Browning has worked it up to perfection. There is a fair sprinkling of good specimens in Burns, but the really felicitous cases are not numerous:—

> "An' buirdly chiels and clever hizzies
> Are bred in sic a way as this is."

> "An' what poor cot-folk pit their painch in,
> I own it 's past my comprehainson."

> "He'll screed you aff Effectual Callin',
> As fast as ony in the dwallin'."

> "And now remember, Mr. Aiken,
> Nae kind o' licence out I'm takin'."

None of those are particularly striking; more in his way are certain figures of speech, such as the simile of surprise and exaggeration, the novel and incongruous contrast:—

> "Oh Tam! oh Tam! ye'll get yer fairin',
> In Hell they'll roast you like a hairin."

> "Meg was deaf as Ailsa Craig."

In the "Jolly Beggars," the violent love-making that goes on amongst that motley crew, is wittily described:—

> "She held up her greedy gab,
> Just like an aumous dish."

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"Ilk smack still, did crack still,
Just like a cadger's whup."

The "Ordination" has some witty similitudes:—

"We'll hing our fiddles up to sleep
Like baby-clouts a-dryin'."

and

"Oh rare! to see our elbucks wheep,
And a' like lamb-tails flyin'."

His faculty for startling contrasts is equally telling. In the "Holy Fair," during the lengthy service—

"Some are thinkin' o' their sins,
An' some upon their claes."

and after all is over—

"There's some are fou o' love divine,
There's some are fou o' brandy."

The combination named condensed sentence provides illustrations:—

"Wi' usquebae and blankets warm";

or

"Corbies and clergy are a shot richt kittle";

or

"As true's the Deil's in Hell,
Or Dublin city."

This form descends to mere incongruity or incompatibility, as in "Holy Willie's Prayer"—

"Curse Thou his basket and his store,
Kail and potatoes."

Such incongruous combinations are a great feature in Burns, and might be illustrated at length. Of a different character, and more allied to the conundrum, is his witty and ingenious periphrasis for Newfoundland, in the "Twa Dogs."

"Cæsar was nane o' Scotland's dogs,
But whulpit some place far abroad,
Whare sailors gang to fish for cod."

The more polished and subtle forms of wit, the epigram, innuendo, and irony, do not find so ready illustration, apart from humorous combinations. Many of the little snatches, so-called

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epigrams, that Burns threw off extempore at odd moments, are often not true epigrams at all, and even when they are, do not show him at his best.

Here is one well-turned epigram from "The Twa Herds"—

> "Sic twa,—O do I live to see't,
> Sic famous twa should disagreet,
> An' names like villain, hypocrite,
> Ilk ither gien;
> While New Licht herds wi' laughin' spite,
> Say neither's leein'."

Innuendo—

> "Duncan was a lad o' grace;
> Maggie's was a piteous case,
> Duncan couldna be her death,"—

an imitation of Shakespeare's reconciliation of Beatrice and Benedict in "Much Ado about Nothing."

While wit is, I take it, the predominant quality in the passages just cited, it is true that they are not all pure specimens, and that certain of them show humorous elements: so difficult is it to separate the effects, and so well do the poets know the virtue of combining their good things.

2. *Ridicule.* We may now come to our second division of the subject—Burns's ridicule. Wit is far from absent, but I group together the more particularly caustic effects—the more savage and stinging forms of vituperation, conjoined with derision. Strange to say, these mostly gather round the subject of religion and the church, and were the outcome of Burns's attitude in the controversy between the Auld and the New Lichts. I need not go into the circumstances that drew Burns into the camp of the New Lichts, the moderate, or rationalistic, or, as they liked to call themselves, the common-sense party of the day, as against the Auld Licht, or strictly evangelical or hyper-orthodox exponents of Calvinism. It is necessary, however, to premise that there was a personal element in the case, and that the poet's fierce onslaughts on the Old Light clergy and their more ardent adherents were not entirely due to righteous indignation at their hypocrisy and insincerity: this to a certain extent detracts from the success of the poems, because the evidence of fierce partisanship is frequently cropping up. In some respects Burns's healthy radicalism ought to have sympathised with the Auld Licht party, as, for example, in regard to patronage, but all that was swamped by

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the overpowering animus and offended pride that, in the first instance, prompted his scathing outbursts. However, we must take them as we find them, and judge them as specimens of ridicule, without reference to their origin. In that regard they are highly illustrative, and no doubt impressed friends and foes with the advantage of having such a pen as an ally rather than an antagonist. The poems are "The Twa Herds," "The Ordination," "The Kirk of Scotland's Alarm," "Holy Willie's Prayer," "The Holy Fair," "The Address to the Unco Guid."

The first of these—"The Twa Herds"—is a somewhat spiteful jubilation over an unseemly quarrel between two of the Old Light clergy—Russel of Kilmarnock and Moodie of Riccarton, both favourite butts for the poet's satirical darts. The wit consists in keeping up the realism of the metaphor in shepherds, and garnishing it with grotesque allusions to sheep, dogs, and tods, and all the conventional amenities of a genuine shepherd's life. The situation —a clerical fight—is not new, but though far from being uncommon in our own day, still provides excellent sport for scoffing Philistine spectators. I give a few tit-bits :—

"What flock wi' Moodie's flock could rank,
Sae hale and hearty every shank ;
Nae poison'd, soor Arminian stank
He let them taste ;
Frae Calvin's well, aye clear, they drank—
O, sic a feast.

"What herd like Russel tell'd his tale,
His voice was heard thro' muir and dale,
He kenn'd the Lord's sheep ilka tail,
Owre a' the height ;
An' saw gin they were sick or hale,
At the first sight."

The whole poem is in this ironical strain, bewailing, in a mockingly doleful fashion, the misfortune of such a "black outcast" between the "twa best herds in a' the wast," and imploring the other Auld Lichts, to "gar them gree," so that Orthodoxy may recover lost ground, and Learning may dance as she ought on the gallows—

"An' that fell cur ca'd Common sense,
That bites sae sair,
Be banish'd o'er the sea to France :
Let him bark there."

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This is pretty hard hitting, without any redeeming touch of tenderness.

The same kind of sentiment is repeated with equally scathing irony in "The Ordination," where the onslaught is inspired by the election of an Auld Licht minister—called M'Inlay—to the Laigh Kirk of Kilmarnock. After a run of New Licht preachers, a retrograde movement on the part of the patron, in selecting one of the old school, prompted Burns's assault. "Curst common sense (that imp o' hell)" has reigned too long, but M'Inlay, on this great day, comes armed with his flail, and "he's the boy will blaud her." Preliminaries over, the Presbytery proceed to the proper formalities of an ordination ceremony. This is expressed with some sly innuendoes—

> "They try his mettle on the Creed,
> And bind him down wi' caution,
> That stipend is a carnal weed
> He tak's but for the fashion."

Then, when the formalities are all over, and the minister securely "placed," as the phrase is, Kilmarnock is apostrophised in the following ludicrous stanza—

> "Now auld Kilmarnock cock thy tail,
> An' toss thy horns fu' canty;
> Nae mair thou'lt rout out owre the dale,
> Because the pasture's scanty,
> For lapfuls large o' gospel kail
> Shall fill thy crib in plenty,
> And runts o' grace, the pick an' wale,
> No gi'en by way o' dainty,
> But ilka day."

This is clever wit, but the metaphorical details have also considerable humour, provided we can sympathise with the attacking party. The poem closes with the usual catalogue of ironical benefits—Orthodoxy being triumphant, Learning, Common-sense, and Morality *exeunt* in disgrace—

> "See! see! auld Orthodoxy's faes,
> She's swinging thro' the city;
> Hark, how the nine-tailed cat she plays,
> I vow it's unco pretty.
> There Learning, with his Greekish face,
> Grunts out some Latin ditty,
> And Common-sense is gaun, she says,
> To mak' to Jamie Beattie
> Her plaint this day."

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The subject is again reverted to in the "Kirk of Scotland's Alarm," where the theme is a heresy hunt in the well-known style of the eighteenth century, against a Dr. M'Gill for writing a heterodox essay. Irony again is the chief weapon :—

> "Dr. Mac. ! Dr. Mac. ! you should streek on a rack,
> To strike evil doers with terror ;
> To join faith and sense upon any pretence
> Was heretic, damnable error."

Every member of the Presbyterial Committee chosen to try the case is hit off to the life—the weakness of each being focused in a glaring light. In particular, the ranters are not spared. But I have space only for the portraits of Moodie and Russel, our old friends of the "Twa Herds" :—

> "Singet Sawnie ! Singet Sawnie ! are ye huirdin' the penny,
> Unconscious what danger awaits ;
> With a jump, yell, and howl, alarm ev'ry soul,
> For Hannibal's just at your gates."

That is Moodie ; much more pointed are Russel's idiosyncrasies :—

> "Rumble John ! rumble John ! mount the steps wi' a groan,
> Cry, 'The Book is with heresy cramm'd' ;
> Then out wi' your ladle, deal brimstone like aidle,
> And roar every note of the damned."

Clearly there is nothing very vulnerable in the character of the clergy satirised in these poems. They were austerely strict in Church discipline, narrow in their tenets ; they were very probably sour-visaged, bigoted zealots, devoid of learning, skilled only in the noisy art of thumping ; they were, doubtless, full of self-conceit, and at heart were rabid inquisitors, and thus far presented a sufficiently broad target to the shafts of a satirist, like the English Puritans, of whom they were a survival. But their private life was consistently upright, at least we may infer so from Burns's silence on that head ; if openings of this kind had presented themselves he would presumably have been only too glad to avail himself of them. He does insinuate one or two moral delinquencies ; but the fact that his strongest points are want of sense and brains and learning—clumsy weapons for one with such priest-skelping turns—suggests the absence of better missiles. As subjects of satire, therefore, they are not so fruitful as those more assailable for personal inconsistency or

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palpable Pharisaism, like "Holy Willie," or the "Unco Guid," or the characters in the "Holy Fair."

The attack on Holy Willie—the climax of all these efforts—is, perhaps, the most scathing and scarifying exposure of hypocrisy and self-righteousness that ever human being has been subjected to. It is a work of art. The art consists partly in making the subject paint himself; out of his own mouth, as it were, comes his condemnation, and the picture so drawn, clear in outline and palpitating with life, of the absurd lengths to which doctrinal Calvinism may drive its more sanctimonious devotees, remains one of Burns's masterpieces of sarcasm. Of course, it has been condemned as too severe, too pungent, as irreverent and irreligious. No doubt it is pungent enough, but the type of character held up to opprobrium, the man that divorces the practice and the profession of religion, who makes great pretensions to piety without any attempt at average practical morality, is not defunct even in the nineteenth century. Moreover, it surely cannot be irreverence, but a real service to genuine religion, to gibbet its imposture. It is not religion so much as its travesty—ecclesiasticism, that he laughs at. Hypocrisy and superstition owe him a heavy grudge, but in Scotland he did religion a service. Besides, in regard to Holy Willie, his picture, if skilfully painted, was not overdrawn, as is proved to some extent by the after history of the subject. William Fisher was a leading elder in the Mauchline Parish Church, and an ardent inquisitor and fanatical supporter of church discipline; but he was found out in the end, and closed his career miserably in a roadside ditch, into which he fell on his way home from a debauch.

To come to the prayer itself—Willie's conception of the Deity is peculiar, but not without warrant in some of the harsher Calvinists of the eighteenth century:—

"Oh Thou, . . . . . .
Wha sends ane to heaven an' ten to hell,
A' for Thy glory,
And no for ony gude or ill
They've done afore Thee.

"I bless an' praise Thy matchless might,
When thousands Thou hast left in night,
That I am here before Thy sight
For gifts and grace,
A burnin' an' a shinin' light
To a' this place."

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This noble pillar of the Church, the special favourite of Providence, although he denounces drinking, dancing, and singing, is himself occasionally guilty of more heinous offences, which, although he has the grace to confess them, he flatters himself may be sent as thorns to buffet—

> "Lest he owre proud and high should turn,
> That he's sae gifted;
> If sae, Thy hand maun e'en be borne,
> Until Thou lift it."

This fine sarcasm reaches its climax, when, in unconscious contradiction of every Christian principle, he invokes divine vengeance on his triumphant enemies :—

> ". . . blast their name,
> Wha bring Thy elders to disgrace
> An' public shame."

Very telling, too, is the naïve way in which he plays the part of sneaking informer on Gavin Hamilton's iniquities—mildness itself as compared with Willie's deviations from rectitude—and, familiarly, and in strict confidence, suggests to Providence a proper course of castigation and retribution :—

> "Lord, mind Gaw'n Hamilton's deserts,
> He drinks, an' swears, an' plays at cartes,
> Yet has sae mony takin' arts
> Wi' great an' sma',
> Frae God's ain priest the people's hearts
> He steals awa'."

The glib-tongued Aiken, the lawyer who had defended Hamilton when brought before the Presbytery, comes in for his anathema :—

> "Lord, in Thy day of vengeance try him,
> Lord, visit them wha did employ him,
> And pass not in Thy mercy by them,
> Nor hear their prayer,
> But for Thy people's sake destroy them,
> An' dinna spare."

Then, with the most barefaced and complacent egotism he comes round to his own deserts :—

> "But, Lord, remember me and mine,
> Wi' mercies temporal and divine,
> That I for grace and gear may shine,
> Excelled by nane,
> An' a' the glory shall be Thine,
> Amen! amen!"

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and with this gush of magnanimity the poem concludes. Throughout there is not one breath of tenderness, not one touch of sympathy with the victim, but as a recall to a juster conception of the Deity as a God of Love, and to the Christian principle of forgiveness of enemies, nothing could be better, and it has done excellent service.

The "Holy Fair" was doubtless equally effective in Burns's day, although, since the abuses it satirises are now happily extinct, it does not appeal to us with the same force. It is not so malicious in its purpose, being less pointedly directed at individuals, and being redeemed by touches of genuine poetry throughout. In the company of Fun, the poet makes his way to Mauchline annual communion, to deride the hypocrisy and superstition rampant in that assembly. He describes with great vividness the heterogeneous gathering of farmers and cotters, of lasses and lads, and the grotesque mixture of seriousness and absurdity, of religion and sensuality, that, if we allow for a certain amount of exaggeration, characterised these great annual gatherings in rural districts to celebrate the Holy Communion, and then proceeds to hit off the various preachers and their different styles of oratory. Moodie—one of Burns's pet aversions—opens the ceremony, and again it is the preacher's appearance and ranting manner that are castigated. We should expect a Burns to be above this rather shabby mode of attack, but apparently there was nothing else assailable :—

"Now a' the congregation o'er
  Is silent expectation ;
For Moodie speels the holy door,
  Wi' tidings o' damnation.
Should Hornie, as in ancient days,
  'Mang sons o' God present him,
The verra sight o' Moodie's face,
  To's ain het hame had sent him
    Wi' fright that day."

Then comes Rev. George Smith of Galston—an orator of a different stamp, preaching cold morality, without any inflammatory or sensational elements—

"A' the real judges rise,
  They canna sit for anger ;
Smith opens out his cauld harangues
  On practice and on morals,
An' aff the godly pour in thrangs,
  To gie the jars and barrels
    A lift that day.

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. . . . . .

"His English style and gesture fine
Are a' clean out o' season."

Perhaps the most depreciatory portrait of all is that of the diplomatic Miller—

"Wee Miller neist, the guard relieves,
An' Orthodoxy raibles,
Tho' in his heart he well believes
An' thinks it auld wives' fables:
But faith! the birkie wants a manse,
So, cannilie he hums them;
Altho' his carnal wit and sense,
Like hafflins-wise o'ercomes him
At times that day."

The indictment against Miller being insincerity—a legitimate satirical weapon, we are to infer that the others were not specially tainted with this weakness, but Burns never hints at this possibility. Black Russel brings up the rear with his heavy artillery, a very material picture of hell:—

"His piercin' words like Hielan swords,
Divide the joints and marrow;
His talk o' hell whare devils dwell,
Our vera souls does harrow
Wi' fright that day.

"A vast, unbottomed, boundless pit,
Fill'd fu' o' lowin' brimstane,
Whase ragin' flame an' scorchin' heat
Wad melt the hardest whin-stane!
The half-asleep start up wi' fear,
An' think they hear it roarin',
When presently it does appear,
'Twas but some neighbour snorin'
Asleep that day."

The combination of derision and humour is here very marked. The satire lies in the realism of the details; in the absurdity of Russel's seeming to know all about the grim terrors, the physiography and the chemistry of this bottomless pit; the humour, on the other hand, lies in this, that, in spite of his impassioned eloquence, and his superlative faculty of realisation, some of his audience are so little moved or affected that they fall sound asleep. Passion or

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terror, pomp or ceremonial, viewed with unconcern or *nil admirari* is humorous. The case is paralleled in Shakespeare's Falstaff. In the "Two Gentlemen of Verona," also, while Julia, standing by, hears her faithless lover devoting himself to Silvia, the host falls sound asleep. The world is not made for passionate lovers, nor for passionate preachers, and Burns does not pledge himself to one view of life.

Lockhart remarks that if Burns had taken up the subject of the rural communion in a solemn mood, he might have produced a poem on the same level as the "Cottar's Saturday Night"; while it is possible to conceive him as applying the satirical humour to a scene of family worship as pregnant with the ludicrous as "The Holy Fair." That may be, but in Burns's home, sincerity was the ruling note, whereas here, it is the palpable mixture of diverse and opposed feelings in the participators that excites his satirical faculty—

> "Ane curses feet that fyl'd his shins,
> Anither sighs an' prays."

The evils were real, and were due to want of judgment in insisting on such a protracted service, and too many sermons (here there are five). It meant an entire day's absence from home; this, together with the long distances that the communicants had travelled, necessitated their laying in an adequate supply of food and drink to tide them over the proceedings. When the services were curtailed to a reasonable length, the evils died out. If Burns were alive now he would find these defects remedied, but others of a different kind have cropped up since his time in another connection, notably the mania for church bazaars. One satire from Burns on this modern craze would have killed the fashion.

The "Address to the Unco Guid" is an attack on the rigidly righteous, not because they are so much better than the average man, but because they are so apt to be severe in judging their weaker brethren. In his common-place book, Burns expresses the same sentiments in prose:—"Let any of the strictest character for regularity in conduct amongst us, examine impartially how many of his virtues are owing to constitution and education, how many vices he has never been guilty of, not from care or vigilance, but from want of opportunity or temptation." The whole poem is a plea for charity to the frailties of the weak, with some hard knocks at the Pharisaical purists who never go wrong:—

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"Discount what scant occasion gave,
That purity ye pride in,
And (what's aft mair than a' the lave)
Your better art o' hidin'.

"Then gently scan your brither man,
Still gentler sister woman;
Though they may gang a kennan wrang,
To step aside is human."

Whether Burns was always careful to practise his own preaching, may, after the specimens of satire just quoted, be open to doubt. Although he could gently scan the character of the deil, he drew the line at Moodie and Russel, at Holy Willie and the Unco Guid.

It is objected to all these poems, not only that they are in bad taste, but that they are profane. While one must admit that there is in the allusions an occasional touch of coarseness and grossness which were better absent, one cannot concede the charge of profanity. Burns ridicules religion, religious subjects, and religious people only when they have become, in the nature of things, ridiculous—a mere travesty of what they ought to be. Of course, Scotland still contains some persons who think that it savours of profanity to raise the slightest criticism on a member of the clerical profession. This is a superstition to which Burns was clearly not subject. He had a keen eye for any weakness in human character, especially as regards cant and hollow pretence, and whether it occurred in a member of the cloth or not he cared little. Perhaps, in a spirit of wanton defiance of what he imagined was an ill-constituted sentiment, he took a diabolical pleasure in turning the tables on those who were the objects of veneration and superstitious awe. That made a soreness; but any soreness felt personally in Burns's day has now, after a century's lapse, disappeared. They are all dust and ashes, satirist and satirised; the personal element, the party animus has evaporated; we can view the efforts dispassionately; we can view the characters merely as types of a breed not yet extinct, and not likely ever to be extinct. The especial dignity associated with the minister of religion, traceable to the superstitious belief that he is in a caste above the laity, a belief warmly encouraged by the clergy themselves at certain dark periods of the Church's history, although it saves him from frequent degradation and familiarity, makes the degradation, when it is effected, and when our sympathies are in abeyance, by virtue of some real justification, all the more

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potent as a source of the ludicrous. The unfrocking of a parson has always provided a feast of malignity to the unregenerate. A Presbytery row, where the grace of Christian charity is conspicuously absent when we expect it to be most pervading, is reported in the daily newspaper in greater detail than a theological discussion. And it is a common remark that such exposures do harm to religion, because the popular mind flies at the illogical conclusion that the others are equally guilty, only they have not broken the eleventh commandment, the sin of being found out. In Burns's words they have only to thank "their better art o' hidin'." Still, it is the duty and the function of the satirist to expose faults, provided they be real. Chaucer dissected the follies of friars and monks, although he has given us also a loving picture of a poor parson—

> "Christes lore and his apostles twelve he taught,
> But first he practised it himself."

Goldsmith and Cowper, too, could draw the line between the genuine and the counterfeit. It is unfortunate for Burns that, although he had friends amongst the clergy, and does occasionally say a good word for them, he has not presented us with a picture of his ideal. His "Cottar's Saturday Night" may be taken as a set off to "Holy Willie," and if he had given us a companion picture, by way of balance to the sketches of the ranting preachers of his time, we should hear less of his irreverence and his irreligion.

Besides satirising the pseudo-religious, Burns found occasion, though in a much milder mood, to deride the weaknesses of women, and the connubial relationship. This is somewhat surprising when we remember his impressionable nature in that region. He humorously confesses to this feature of his character, when he says—

> "There's ae wee faut they whiles lay to me,
> I like the lasses, Guid forgie me."

He had an acute, although fickle, sense of the charms of the feminine character; but that did not blind him to its foibles and vanities. The subject is delicate, but I will venture on a few illustrations. In the "Twa Dogs," Cæsar describes the women of the aristocratic circles in which he himself moved—and the picture is unsympathetic :—

> "The ladies arm-in-arm in clusters,
> As great and gracious a' as sisters ;
> But hear their absent thoughts o' ither,
> They're a' run deils and jads thegither.

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Whyles, owre the wee bit cup an' platie,
They sip the scandal potion pretty ;
Or lee-lang nights wi' crabbit leuks,
Pore owre the devil's pictur'd beuks ;
Stake on a chance a farmer's stackyard,
An' cheat like ony unhang'd blackguard."

This is severe, and shows nothing of the "still gentler sister woman," but it is curious to note that part of it is directed against insincerity.

Other excellent examples are found in the songs, which are so well known that I need only to refer to them. There is fine irony, combined with humour, in "Duncan Gray." Nothing better, in the way of depicting women's wiles and craft in the art of making love, has ever been written than "Last May a Braw Wooer" :--

"I said there was naething I hated like men—
The deuce gae wi'm to believe me, believe me.

"I said he might dee when he likèd for Jean—
The Lord forgie me for leein, for leein.

"He begged for gude-sake I wad be his wife,
Or else I wad kill him wi' sorrow ;
So e'en to preserve the poor body in life,
I think I maun wed him to-morrow, to morrow."

So also in "Whistle and I'll come to you, my lad," where the devices adopted to deceive onlookers as to the relationship between two secret lovers are very slyly set forth :—

"At kirk or at market, whene'er ye meet me,
Gang by me as though that ye car'dna a flee."

"Aye vow and protest that ye carena for me,
And whiles ye may lightly my beauty a wee."

Other flaws, less leniently treated, are the superior attractiveness of a wealthy suitor—in "Tibbie, I hae seen the day."

Bodily deformity is satirised very piquantly in "Willie's Wife":—

"She has an e'e, she has but ane,
The cat has twa the very colour ;
Five rusty teeth, forbye a stump,
A clapper tongue wad deave a miller."

The contrast between the days of courtship and marriage is hit off in "Whistle owre the lave o't," and the irksomeness of a young wife

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tied to an old husband—a threadbare situation in literature—is seen in "What can a young lassie do wi' an auld man?":—

> "I'll cross him, and rack him, until I heart-break him,
> And then his auld brass will buy me a new pan."

These were but temporary moods and feats of skill; when Burns came to balance the account in all seriousness, this was his conclusion about women:—

> "Their tricks and craft hae put me daft,
> They've ta'en me in and a' that;
> But clear your decks, and here's the sex—
> I like the jades for a' that."

3. *Humour.* The genial and more kindly side of Burns's humour—strictly humour so-called—and his best feature, now falls to be illustrated. We laugh, but without venom or malice; there is degradation, but the victim, beyond a little want of ease or comfort, feels no pain; he may, indeed, swell the chorus of approbation. To laugh at his own ludicrous performance in prayer could hardly be expected of Holy Willie. He is too severely handled, he is stung in supersensitive places, and it hurts; but Tam o' Shanter, if he had read of his own exploits, might conceivably be the loudest in response, and perhaps the Deil has laughed many a time at the unusual familiarity with which his character and functions have been treated by Burns, were it only by way of variety from more conventional descriptions. The sting is withdrawn, or its effect palliated.

I make a rough classification, by no means exhaustive, of the diverse effects so richly scattered throughout the pages of our poet.

*First.* He can jest at his own expense. This is as ludicrous a situation as any, because the self-surrender makes sympathy unnecessary, as when he brings into ludicrous juxtaposition his connection with the Excise and with poetry—

> "Searching auld wives' barrels;
> Och hon the day,
> That clarty barm should stain my laurels."

In the "Address to the Deil," the poet turns the laugh upon himself thus:—



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"And now, Auld Cloots, I ken ye're thinkin'
A certain bardie's rantin', drinkin',
Some luckless hour ye'll send him linkin'
To your black pit;
But faith! he'll turn a corner jinkin',
An' cheat ye yet."

Better still in "Death and Dr. Hornbook":—

"The clachan yill had made me canty,
I was na fou, but just had plenty;
I stachered whyles, but yet took tent aye
To free the ditches,
An' hillocks, stanes, and bushes kent aye
Frae ghosts and witches.

"The rising moon began to glower
The distant Cumnock hills out owre;
To count her horns wi' a' my power,
I set mysel';
But whether she had three or four,
I couldna tell."

and again—

"Settlin' my staff wi' a' my skill,
To keep me sicker;
Tho' leeward whyles, against my will,
I took a bicker."

A human being, only slightly intoxicated, is a laughable object to all, except, mayhap, an extreme and rabid teetotaller; when he is conscious of his elevation, and turns his critical faculty, introspectively, upon his condition, the humour is intensified. The worst of it is, that the subject is not always an impartial judge of the degree to which he is affected. Here, however, the fact that he had caution enough to avoid ditches, could distinguish bushes from witches, and was hardly at the stage of seeing double horns in the moon, that he bickered leeward only whyles, assures us of his general safety, and we can laugh without restraint.

*Second.* The degradation when turned upon others may be let loose on aspects of character on which the subject is known not to be sensitive, and may become a foil to flattery or high compliments. What, at first sight, looks like abuse serves to set off the flattery; and the flattery is redeemed by the appearance of plain-speaking. A goo[illegible] of this is seen in the "Lines on Captain Grose":—

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"If, in your bounds, ye chance to light
Upon a fine, fat, fodgel, wight,
O' stature short, but genius bright,
That's him, mark weel.

"By some auld, houlet-haunted biggin',
Or kirk deserted by its riggin',
Its ten to ane ye'll find him snug in
Some eldritch part;
Wi' deils, they say, Lord save's! colleaguin'
At some black art."

So, "Nature tried her 'prentice hand on man, and sine she made the lasses," is a broad compliment to one sex at the expense of the other.

*Third.* The degradation may amount to no more than extreme familiarity with august and dignified personages. The Great Commoner is "Willie Pitt," and his rival, "yon ill-tongued tinkler, Charlie Fox." A peer is "a birkie ca'd a lord." The Scottish muse is a "hizzie." Nature is an "auld, capricious carline." The moon is described as "glowerin'." Caledonia herself is facetiously depicted in "The Earnest Cry and Prayer"

"As greetin' owre her thristle,
Her mutchkin stoup as toom's a whistle,"

and the Scotch peers are earnestly requested

"To speak her fair,
An' straik her cannie wi' the hair."

The gem in this connection is, it seems to me, the ignominious humiliation of Alexander the Great—a hero of two thousand years' standing, and presumably safe from being lightly treated, but he is irreverently snubbed "Macedonian Sandy." The whole quality is seen to perfection in "The Poet's Dream: or, A Birthday Ode to George III.," beginning, "Guid mornin' to your Majesty," and displaying an amount of bosom-friend familiarity and plain-speaking quite refreshing as compared with the distant awe and insincere flattery characteristic of Laureate odes. The tone of exaggerated familiarity carries off a good deal of pungent satire that would otherwise be almost treasonable.

*Fourth.* It is only a different side of the same mood that makes our poet revel in a cool and matter-of-fact handling of sacred,

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horrible, awful, and forbidden subjects. Nothing, however enveloped in conventional sacredness, was safe from his irreverent humour when that mood was in the ascendant. He tears aside, in the most sacrilegious way, all the habitual trappings of dignity that surround certain topics, and lays them bare in abject nakedness. Shakespeare could regard man as noble in reason, infinite in faculty, but he dared to inspect him also as unaccommodated man—a poor, bare, two-forked animal. So Burns ventures to view certain subjects in undress. If his attitude towards things clerical be open to the charge of irreverence, I fear some would charge his portraits of Satan and Death and other gruesome subjects as nothing short of profanity double-dyed. But it is a condition of our enjoying the familiarity that we should be in sympathy with the painter, for, in De Quincey's words, "not to sympathise is not to understand."

Biblical characters are not safe; one incident in Noah's life is irreverently referred to thus:—

> "How graceless Ham leuch at his dad
> Which made Canaan a nigger."

But the Deil is his favourite butt. This dignitary plays a part of some importance in "Tam o' Shanter"; he receives a Laureate ode addressed to his devilship; and frequent mention is made of him throughout the humorous poems.

His conception of the embodiment of Evil is pointedly set off by laying it alongside of Milton's. The epic poet conceives Satan as a being of mysterious grandeur, and dignified to the verge of bombast; the humorous poet comes to closer quarters, scans him more familiarly, and without any approach to reverential awe. The very names and epithets by which he is styled are of the most debasing kind—"Nickie Ben," "Cloots," "Hangie," "Hornie," "Sneck-drawin' Dog"; but his functions and the part he plays in the world, his mysterious ways, give scope for more ludicrous effects:—

> "A winnock bunker in the east,
> There sat Auld Nick, in shape o' beast,
> A towzie tyke, black, grim, and large,
> To gie them music was his charge;
> He screw'd the pipes and gart them skirl,
> Till roof and rafters a' did dirl."

To lower this august being to the level of a beast, to accredit him, at the same time, with the humble position of solitary musician to this

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rollicking company, his instrument being nothing more elevated than the bagpipes, is highly humorous. His musical equipment is more forcible than melodious; something better might be expected from an unearthly performer. The after-touch,

"Even Satan glower'd and fidg'd fu' fain,"

is even more humiliating, as it insinuates the menial attitude of a hired servant, who, although itching to join in the Terpsichorean mazes, is condemned to remain merely the piper.

In the famous "Address," the tone throughout is one of button-holing familiarity alternating with censure, and fraternal or paternal counsel. He is lectured on his evil and tricksy ways; his faults are not glossed over, but carefully laid bare; and scraps of friendly advice are administered with a view to future amendment:—

"O wad ye tak a thocht an' men',
Ye aiblins micht—I dinna ken—
Still hae a stake;
I'm wae to think upon yon den,
Ev'n for your sake."

It is this kindly, compassionate sympathy, shown where least expected, or when its omission might naturally be excused, that gives the finishing touch to this charming "Address." An exact parallel is found in Sterne's "Tristram Shandy." "'He is the father of curses and lies,' said Dr. Slop, 'and is cursed and damned already.' 'I am sorry for it,' quoth my uncle Toby!"

It is useless to quote from a poem so well known, but I may call attention to the skilful use of contrast in bringing together Satan's varied proclivities—his chief business is to scatter brimstone and to punish wretched humanity; but he travels far; "whyles on the strong-wing'd tempest flyin'," he tirls the kirks, for which he has, as might be expected, no great fondness; he lurks "in the human bosom pryin'"; his lonely ways, as he wanders solitary and alone, a pariah bereft of companionship, excite our sympathy for his unhappy lot; with him, warlocks and witches renew their leagues "owre howkit dead." The outstanding incidents in his chequered career are finely selected and hit off with graphic force, especially that day when

"He came to Paradise *incog.*,
An' play'd on man a cursed brogue
(Black be your fa'),
And gied the infant world a shog,
Maist ruined a'."

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It showed some philosophical insight in Burns, that, when the modern theological and more spiritual conceptions of Satan were ousting the cruder notions of the Spirit of Evil as a real personality, he was able to weave into Satan's activities, not merely the incidents accredited by tradition, but the folk lore of witches, the will o' the wisp, &c. We in the nineteenth century can enjoy the fun all the more that the belief in an embodied enemy of man is now out of fashion. A hundred years ago it was still sufficiently credited to make this poem shock the feelings of many worthy people. In our time this is probably less frequent.

Our poet's manipulation of death in "Death and Dr. Hornbook" is an exactly parallel case—the attitude being one of gross familiarity and matter-of-fact coolness in the presence of a horrible and ghostly apparition. Although this unearthly visitant, with its awful scythe "oot ower ae shouther," put him in an "eerie swither," nothing daunted, he is able to address it in the most nonchalant way—

> "'Guid-e'en,' quo' I, 'Friend, hae ye been mawin',
> 'When ither folk are busy sawin'?'"

And even when the hollow voice informs him, "my name is Death," his courage is equal to assuming a threatening attitude, and he draws his knife. But Death not being in a militant mood, an amicable conversation is agreed upon—

> "We'll ease our shanks and tak' a seat,
> Come, gie's your news."

This imperturbable unconcern is intensely comic; but the further degradation of Death to the level of poor humanity, which is subject to the primal curse of having to work for a living, is equally ludicrous—

> "Folk maun do something for their bread,
> And sae maun Death."

His fits of professional jealousy of Hornbook; his selfishly human desire for a real monopoly in killing; his anger at its infringement by an unacademic quack; his biased criticisms of his rival; the jaundiced eye that gives each instance of Hornbook's want of skill an ugly turn unfavourable to the performer; his occasional fits of ill-temper—

> "I drew my scythe in sic a fury,
> I neer han' coupit in my hurry;"

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finally, his delicate confidences, drawn out by the genial presence of a sympathetic listener, which, fortunately, are interrupted by the church clock; all this is humour of the finest. Death is so intensely human. Like Satan, he is strongly anthropomorphic, and if he were anything else he would be no fit subject for laughter. He is nothing but a doctor of medicine, alarmed for his fees, because the parish schoolmaster of Tarbolton, who keeps a grocery store and sells drugs, has issued a circular, in which he announces his readiness to give medical advice gratis.

Like De Quincey's "Murder as a Fine Art," or Shakespeare's grave-diggers in "Hamlet," the humour is too strong for super-sensitive people; the only possible reply we can make to such objectors is to laugh.

This treatment of Death suggests that the horrible generally, may be made the subject of ludicrous handling, and Burns provides a plethora of examples. These unmentionable topics are not produced in scraps, but are piled up in a climactic array that is irresistible. To heap up a mere list of things of whatever kind, until we wonder when it will take end, is humorous, and one of Rabelais' devices. It may be seen also in Burns's "Captain Grose," where he is detailing all the wonderful antiquities in that antiquarian's possession, or in "Death and Dr. Hornbook," where he fires off all the drugs and remedies in which the Doctor is skilled. There is something in the tone, that betrays the poet—he is quietly laughing in his sleeve at his own audacity in dosing us with gruesome details, and slyly watching the effect on his imaginary audience. It must be confessed that some education is required to appreciate this mode of treating the horrible:—

"Coffins stood round, like open presses,
That show'd the dead in their last dresses,
And (by some devilish cantrip sleight)
Each in its cauld hand held a light,
By which heroic Tam was able
To note upon the haly table
A murderer's banes in gibbet airns;
Twa-span lang, wee, unchristened bairns;
A thief new-cutted frae a rape,
Wi' his last gasp his gab did gape;
Five tomahawks, wi' blude red-rusted;
Five scymitars, wi' murder crusted;
A garter which a babe had strangled;
A knife a father's throat had mangled,

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Whom his ain son of life bereft,
The grey-hairs still stack to the heft;
Wi' mair o' horrible and awfu',
Which even to name would be unlawfu'."

When we come to consider the originality of this wonderful conception, and remember that it is in the midst of such weird and suggestive concomitants that the fast and furious mirth, the stirring bagpipe music, the vigorous dancing, and universal revelry, are able to proceed, the whole being intensified by the fact that the stage or arena is a kirk, we have a contrast of the grimmest. What stage ever had such properties? or such an orchestra? or such actors to walk the boards? Was ever audience so unmoved? It says much for Tam's courage that he can gaze on this scenic display and still retain his reason, or his faculty of speech. But Tam, who "didna mind the storm a whistle," who even despised the solemn warnings and Cassandra prophecies of his wife, was not likely to be unnerved by such a spectacle; he is impudent and unabashed enough to interpolate a word of applause, commendatory of the *prima donna's* skill in dancing. The Dutch courage that comes from John Barleycorn will not suffice to explain his bearing; something must be due to the constitution of the individual man.

The whole poem is full of contrasts—the sudden transitions from grave to gay, from grim to graceful, being themselves ludicrous. That famous passage, so full of pure poetry when viewed apart—"Pleasures are like poppies spread"—coming as it does in close contiguity to

"Kings may be blest, but Tam was glorious,
O'er a' the ills o' life victorious,"

is really humorous—a degradation of lofty sentiment. When we remember that the particular pleasure that Tam was enjoying was nothing higher in the scale of hedonism than a comfortable seat beside a blazing ingle, with plenty of "reaming swats that drank divinely," we feel that the similes are too high flown to be taken seriously. It is Titania, the Queen of the Fairies, fondling the long ears of Bottom, the weaver. A similar remark applies to the elevated moral reflections on Tam's domestic peace. His "sulky, sullen dame" sits at home,

"Gathering her brows like gathering storm,
Nursing her wrath to keep it warm."

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She had taken a just estimate of her unworthy husband's character, and of his probable fate, but, after the manner of worthless husbands, he is heedless and indifferent. Then, as it were with a sly wink, the poet fires off his mock-serious apostrophe—

> "Oh! gentle dames, it gars me greet
> To think how many counsels sweet,
> How many lengthened, sage advices
> The husband frae the wife despises."

The woman's natural gift for lecturing peccant man is a subject of laughter with Chaucer.

*Fifth.* This line of remark brings us, by a natural transition, to our fifth variety—the mock-heroic, the topsy-turvying of the natural order of things, the glorification of the mean, and the exaltation of the insignificant. This is not essentially different from the last, for to exalt the humble is logically the same as lowering the lofty. The difference lies only in the point of view. To raise a dog to the level of mankind is degrading humanity.

The poems here illustrative are particularly "To a Haggis," "The Jolly Beggars," "The Twa Dogs," "The Death of Maillie," and "The Auld Farmer's Address to his Mare."

"The Haggis" is a good example of the mock-majestic. The inanimate is exalted to the level of a human entity by a stroke of personification, thoroughly original—

> "Fair fa' your honest, sonsy face."

The figure is kept up in other details—the drops of perspiration that run down its cheeks, &c.

The "Jolly Beggars" sets up for our admiration a band of ragged tatterdemalions, a graceless crew, who neither fear the prison nor regard the law, who have no visible means of sustenance, and yet are as happy as the day is long. They "sit like gods together, careless of mankind." The task of elevating into interest by sympathetic treatment these unlikeable characters, not merely imaginary beings, but real and nauseous to us from actual observation, and from our natural prejudices against all beggars, tinklers, *et hoc genus omne*, was one of the most difficult that Burns ever set himself to. He had a deadweight against him from the beginning, but it vanishes when he takes his pen into his hand. He allures us into a sympathetic study of the convivialities of the randie,



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gangrel bodies, "that kept their splore in Poosie Nansie's." Our sense of law and order does not take alarm at their anarchical sentiments. There is no Justice of the Peace, no supporter of constitutional government, but can laugh at their defiant and heterodox views:—

> "A fig for those by law protected,—
> Liberty's a glorious feast;
> Courts for cowards were erected,
> Churches built to please the priest.
>
> "What is title? what is treasure?
> What is reputation's care?
>
> "Life is all a variorum,
> We regard not how it goes;
> Let them cant about decorum
> Who have characters to lose."

In the "Twa Dogs," the fun consists in setting up the canine friends of the rich man and the poor to portray the vices and the virtues of their several castes. No man is a hero to his valet; and Burns implies that an observant dog may detect flaws in the paragon of animals, the glory of the universe. It is but ringing a change on his desire that

> "We should see oursels as ithers see us."

The situation is ingenious, and to one with Burns's many-sided resources, provides a rich field of humorous effects. The whole poem, from beginning to end, is a fine example of the ludicrous—the contrasted character of the dogs, their contempt for man's vices and amusements. Although Cæsar, to judge by the company he keeps, is not proud, he maintains an air of patronage and superiority to his humbler companion. He wonders "what sort o' life poor dogs like you have"; he staggers Luath by such remarks as, "Haith, lad, ye little ken about it"; and, "Lord, man, were ye but whyles where I am." Luath sits humbly at the feet of Gamaliel and accepts Cæsar's wonderful narratives with an air of provincial surprise. "Hech, man, dear sirs, is that the gate they waste a bonny, braw estate." Cæsar is condescension; Luath is deference. Cæsar's strongly-expressed contempt for the "whipper in,"

> ". . . wee blastet wonner,
> Poor, worthless elf, it eats a dinner
> Better than ony tenant-man
> His honour has in a' the lan'."

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is a subtle stroke of character, accentuated by the neuter pronoun; being no doubt spoilt and pampered by his aristocratic master, this splendid Newfoundland naturally resents the rigid rule of a subordinate authority. Another delicate stroke lies in making him raise the curtain on his patrons' vices, and depict their ways in anything but flattering terms. It argues a certain want of gratitude, that notwithstanding his many blessings, he turns a critically unfavourable eye on those who provide for him; Luath, although not kept for his master's pleasure, is more favourable in his account of cottar life. He is his master's friend and comrade, and when the children are

> ". . . rantin' thro' the house,
> I for joy hae barked wi' them."

Moreover, the only kind word said for the lairds comes from his mouth—

> "Fint haet o' them 's ill-hearted fellows,
> The ne'er a bit they're ill to poor folk."

The complacent conclusion they arrive at is a fine parting stroke of degradation—"They shook their lugs, rejoiced they werena' men but dogs."

The "Death and Dying Words of Poor Maillie" is parallel to the "Twa Dogs"—a lower animal turning upon man and administering a piece of salutary advice, the insinuation being that a man may learn something even from a sheep:—

> "O, bid him never tie them mair
> Wi' wicked strings o' hemp and hair."

Both of these poems agree in another aspect of the ludicrous, which may be noted. Although Burns is raising creatures to the level of humanity, and endowing them with all his own keenness of insight, so that they are mere masks through which to express his own ideas, and although a great part of the humour, therefore, arises from their not being real animals, yet he is careful to colour their language and imagery from their own world, and to make them speak in character, so that on occasion the ingenious dramatic appropriateness of their remarks becomes a subject for laughter. This is perhaps more wit than humour. Cæsar uses a happy simile, the most natural in the world for a dog to use, if similes were in his way. His master's purse, he says, is

> "A bonnie silken purse as lang 's my tail."

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And the gentry "gang as saucy by poor folk" as he would pass an ill-smellin' badger. The pastime of bull-baiting, as practised in Spain, comes in for his contempt, and he characterises it as "fechtin' wi' nowt"—an amusement beneath the dignity even of a dog.

So Maillie, although she is intensely human and unsheeplike in her concern for the future of her two lambs, and in her desire that when they think upon their "mither," they "should be kind to ane anither," is still altogether a sheep when she prays that they may be saved from "dogs and tods, and butchers' knives," that they may avoid the evil propensities of lambs to

> "Slink through slaps, and reave and steal,
> At stacks o' pease and stocks o' kail.
>
> "So may they, like their great forbears,
> For mony a year come through the shears;
> So wives will gie them bits o' bread,
> And bairns greet for them when they're dead."

Moreover she keeps it up in the reward which she holds forth to Hughoc for his careful attention to her tale, and for his implied consent to carry her dying message to her master.

The raising of humble subjects takes a higher level in the "Auld Mare." It is overspread with a kindly and sunny humour, warm, genial, unaffected, undimmed by any cloud of satire, and giving offence to nobody. Both this and the "Death of Maillie," are highly characteristic of Burns at his best, Burns the warm-hearted, whose tender affection can enclose in its circuit a mouse, a poor sheep, and a worn-out horse. If we were asked to name one feature in Burns's humour wherein he is unique and differs from other humorists, it is here, in his ability to identify himself with the lower animals, as if he were one of themselves, to enter into their woes with a pathetic sympathy, as also to exchange a knowing and familiar smile with them over past events. To the Mouse, he affirms himself, "Thy poor, earth-born companion and fellow mortal"; while to his auld mare, Maggie, he says—

> "We've worn to crazy years thegither,
> We'll toyte about wi' ane anither."

That humour and pathos are two streams flowing in different directi[illegible] fountain-head, is very well illustrated in such a

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poem, which has for its chief motive the contrast between now and then, what she was in her filly days, "a bonny gray, a jinker noble for heels an' win'," and what she is now in her old age, "howe-backit, dowie, stiff, and crazy," with her "hide as white as a daisy," and her "hobblin' gait, like a sawmont coble." Her feats of strength, her manageable nature, and her immunity from shirking, are all put to her credit, and remembered in her favour to-day when she is really worthless from any side of political economy. Much of the poem is, in this way, pure pathos, and if maintained throughout might land us in something approaching the maudlin stage of sentimentality, but when there is the slightest danger of the sentiment being overdone, in comes the laugh as a restorative :—

> "My plough is now thy bairn-time a';
> Four gallant brutes as e'er did draw;
> Forbye sax mae, I've sellt awa',
> That thou hae nurst;
> They drew me thritten pund an' twa,
> The verra warst."

This touch of prosaic detail and extreme particularity as to the profit and loss account, coming in the company of lofty sentiment, is a sly, pawky stroke, very effective.

The best parallels to this side of Burns may be found in Sterne:—

> "My uncle Toby had scarce a heart to retaliate upon a fly. 'Go,' says he, one day at dinner, to an overgrown one which had buzzed about his nose, and tormented him cruelly all dinner-time, and which, after infinite attempts, he had caught at last, as it flew by him. 'I'll not hurt thee,' says my uncle Toby, rising from his chair, and going across the room with the fly in his hand, 'I'll not hurt a hair of thy head.' 'Go,' says he, lifting up the sash, and opening his hand as he spoke, to let it escape. 'Go, poor devil! get thee gone; why should I hurt thee? this world surely is wide enough to hold both thee and me.'"

There is one point in which some apology needs to be made for our poet's humour. It must be confessed that he is often impure and indelicate; in consequence many of his cleverest turns cannot be quoted. This defect is more than counter-balanced by his wealth of poetical effects in more pleasing directions. Moreover, it is a weakness which Burns shares with other humorists. Rabelais was guilty, perhaps from mere abundance of animal spirits; Swift also, perhaps from mental disease, which made him brood unnecessarily

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over impurity. Smollett and Fielding are coarse enough when they please, but without any morbid tendency. Sterne is permeated with impurity of thought and suggestion, and Byron was equally guilty.

Beyond the incidental references throughout the paper, I make no attempt to compare Burns with other humorists. His daring transitions from grave to gay are in some points Shakespearean, in others, Byronic. In his kindly feeling he occasionally recalls Sterne, whereas his grim familiarity with lofty personages is more like Carlyle. The modern who, in the midst of much that is different, comes nearest to him, and touches him at most points is, it seems to me, "Mark Twain," whose humour consists, to a large extent, in the degradation of things hallowed by sentiment and antiquity. But he wants Burns's kindliness, as well as Burns's spontaneity. He has too much of the professional humorist about him; his exaggerations, and his tone of cool indifference in the presence of the most inspiring objects have too much the appearance of being made to order; they are hammered out till they become thin; they are manufactured because it pays. American humour generally, is of a kind by itself, an affair of grotesque spelling, of hyperbole and anti-climax; but it has influenced our own literature, and we, too, have developed a new kind of humour, which, though not easy to characterise, may be styled the burlesque. In comparison with Burns, it is poor and ephemeral stuff, as moonlight unto sunlight, as water unto wine.

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*January* 31, 1899.—Professor PIRIE *in the Chair.*

Professor ROYCE, of Harvard University, U.S.A. (Gifford Lecturer in Aberdeen University), communicated a paper entitled, "The Recent University Movement in America."

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## *The Recent University Movement in America.*

By Professor ROYCE, of Harvard University, U.S.A.

The kind invitation of the Philosophical Society has given me this opportunity to address you. Conversations with friends and colleagues during my brief stay here have suggested the topic of my address. An American teacher, engaged, even whilst he is here amongst you, in distinctly academic duties, can most easily speak to a company like this regarding the fortunes of his own profession at home. And I undertake the task solely in the spirit of one who wishes to take counsel with his brethren concerning very important interests which are common to us all. It is not my wish to give any mere catalogue of the external facts about the material side of our American University life. My interest, and yours, as I doubt not, is rather in the spirit and the meaning of our recent University movement in the United States. This spirit I want in a measure to portray, as far as my inadequate powers may permit.

The deeper problems of University life are, in all the more civilised countries, of necessity very largely the same. The University in any land ought to represent at once the best tradition of learning that its country has been able to win by virtue of the labours and sacrifices of the past, and also the most advanced and hopeful ideals of progress, both in knowledge and in spiritual power, that the best minds form when they now look forward into the future. The University is accordingly bound to represent equally both of these interests. Its task at any moment is always to harmonise what is permanently valuable about the ancient tradition with the new insight. No institutions should be more conservative, in a wise sense, than the Universities ought to be—conservative, I mean, of respect for the fathers, of the memory of former generations, and of the historical continuity of our common humanity. No institutions, on the other hand, ought, in another sense, to be more freely and

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fearlessly progressive than Universities, since knowledge can recognise no barriers as absolutely impassable to the human spirit, and can regard no merely temporal tradition of our fallible human insight as the absolutely final statement of the truth. The University is, therefore, the natural home and training school both of reverence and of freedom, both of our historical memory and of our hopeful, reforming spirit, both of piety for the past and of a courageous pressing on towards the things that are before. The problem of the University in any land is always precisely the reconciliation of these two apparently opposed interests. You all know this problem in your own academic life. You daily have to recognise this task, both in the practical relations of your University to the material interests of the world about you, and in the interior relations of the various departments and ideals of study within your University itself. Well, what I want briefly to indicate is the form which just such problems have taken with us in America, and a few of the incidents of the undertakings by which we have tried to meet our problems.

It must be remembered that, in hastily preparing these observations, I do so quite apart from any access to documents and to other written or printed sources of information. I can say, therefore, only what any American College teacher might tell you as he looks over his memories of our recent University movement.

The earliest academic institution in America was Harvard College, out of which the Harvard University of to-day has grown. The first colony in New England was established at Plymouth in 1620. Sixteen years later, in 1636, by an Act of the General Court of the Colony of Massachusetts Bay, there was established at Newtone, since called Cambridge, in the immediate neighbourhood of Boston, a College, to which John Harvard, himself a graduate of Emmanuel College, Cambridge, gave a sum of money, so that the new College received his name. The purpose of the foundation is stated, in an early document of colonial annals, in quaint and beautiful language, which is now perpetuated in one of Harvard's favourite public inscriptions. The colonists had established their towns, and begun their life in the wilderness. They feared, so they in effect say, above all things the consequences of an uninstructed ministry. They founded the new College to ward off these dangers. The institution, by the terms of its early seal, was dedicated to Christ and the Church.

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The interests of the ministry were prominently in mind in the foundation of our later Colleges of colonial date, such as Yale and Princeton. The rapid growth of the new Republic after the War of Independence led, however, not only to a proportionately rapid increase in the numbers of our academic institutions, but to an early diversification both of the ends that they undertook to accomplish and of the local traditions and interests that they represented. Our academic development, viewed in our nation as a whole, has, therefore, never followed the centralised type of the English University life. No one institution has ever attained the relative prominence in our own national world of learning that Oxford or Cambridge naturally possess. For a very long time our collegiate institutions were wholly provincial in their origin, and were largely so in their purposes and management. They were the outcome of local ambitions. If circumstances have later given to some of them a genuinely national significance and spirit, that result has been due to a process of evolution, and not to any legal enactment. Moreover, this process has been everywhere limited by the very wide extent of territory over which our culture has been forced to spread itself.

As you follow the older history of our academic life, what you find, then, as you look over the numerous States which our settlers gradually formed, is, first of all, a large and rapidly increasing aggregate of decidedly local institutions, called, according to the choice of their founders, either Colleges or Universities. All of these institutions conferred degrees. In particular, they conferred the degree of Bachelor of Arts upon those who had completed a four years' course of academic study. If you ask by what authority these various institutions were founded, and whence they received the right to confer degrees, the answer is that they belonged, on the whole, to three classes—classes which still exist amongst us. The larger number of these older Colleges or Universities were first founded in more or less close and express relation to the work and usually to the ministry of some religious denomination. Many of their graduates went on to the study of Divinity. A second, and in their evolution generally, a later class were the State Universities, founded directly by the Legislatures of the various States of which our Union is composed. These institutions were established under some form of State control. A third class of our academic institutions were the product of private benefactions. The foundation of any one of these would



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be due to the gift or bequest of some individual. The first and third of these classes of Colleges, viz., the denominational Colleges and the foundations due to individual benefactors, were usually authorised to confer degrees by means of special charters conferred by the States wherein they grew up; or sometimes they were permitted to give degrees by the authority of a general State law passed to regulate the foundation of institutions of academic grade. Our central National Government was prevented, in part by the limitations imposed upon it by the Constitution, and still more by the general States Rights' tradition, and by its own established policy, from undertaking to found or to bring into any one centralised organisation these various types of Colleges. The sometimes over-hasty growth of academic ambitions was thus left without central control. Public opinion, as it developed in our various regions, and the academic conscience itself, as it grew more intelligent with the growth of the country, have, therefore, been the principal factors upon which we have had to depend for the improvement of our higher education, for the raising of its standard, and for the establishment of closer relations of co-operation amongst the various independent Colleges.

If one looks closer at the three types of institutions thus defined, the denominational Colleges, the State Universities, and the privately endowed independent institutions, one finds—especially the first and second type—occupying, in the end, decidedly contrasting places in our academic history. The first type—the denominational Colleges—as our country grew, multiplied for a while all the more rapidly for two notable reasons. Of these the first reason lay in the fortunes of our ecclesiastical development. America has been a region for the rapid differentiation of religious sects. This differentiation with us has been due to (1) the general thoughtfulness of the people, (2) to the absence of the visible monuments of historical tradition, and (3) to the relatively high average training of the purely popular intelligence. Independent and earnest thinking about religious matters has been with us, as with you here in Scotland, a very common and important factor in our social life. There has been with us, however, no such organisation of the national consciousness and traditions as could set any definable limits to the resulting differentiation of confessions. New sects, or divisions of older sects into various bodies—all of very considerable strength and standing—have, therefore, occurred with us much more frequently

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than here. And where sectarian development was considerable and vigorous, a desire for representative collegiate institutions used to be, with us, an important symptom of the earnestness of the individual religious bodies. We owe a great deal to this disposition of the sects to give their serious convictions an embodiment in the form of collegiate institutions. For, on the other hand, the strongest of the denominational Colleges, once established, have very generally tended with us, just as in so many similar cases in the Old World, to outgrow the narrower ideals of their original founders. The Harvard of the Puritans was certainly a denominational College. But Harvard has proved in the end to be the very nursery of spiritual freedom in New England, and has now no sectarian affiliation. Yale and Princeton still remain in closer touch, the one with New England Congregationalism, the other with the Presbyterian body. Yet in both these institutions it is rather the spirit than the mere formula of their faith that you feel when you consider their modern influence. Both of these Universities are distinctly religious institutions. But neither of them is under any merely ecclesiastical domination as regards the freedom of academic teaching in matters of pure science and of progressive erudition. In much smaller and less significant instances, the same holds true, in a measure, of such Colleges as, first founded under a narrower denominational government, have survived and have become relatively strong. With us the rule holds, I think, that the sectarian College, if it prospers, tends, in the long run, to humanise the asperities with which the earlier history of its special sect may have been associated, rather than to lose sight of its academic ideals in its task of defending a single group of dogmas. So true is it that, even in the humbler instances, the spirit of the University tends, even through the keenest self-criticism, towards the higher harmony of life, rather than towards mere separations and hopeless or merely barren controversies. Seldom indeed have such institutions, so far as I know, applied religious tests to limit the conferring of the degree of Bachelor of Arts. Nevertheless, of course, the denominational College is, on the whole, more or less bound up with the internal life of its own religious body. And herein often lies the ground of a certain limitation of the range of its influence.

On the other hand, the State Universities have been of necessity non-sectarian institutions. For no State has with us any Established Church. These State Universities are most frequent and powerful in the newer States. Famous amongst the institutions of this type

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is the University of Michigan, at Ann Arbor. Another instance is the University of California, founded in 1869. While the National Government is not the source of the authority of any of these State Universities, they have in general derived a portion of their resources from the sale of grants of public land which the National Government has given to the various States for the purpose of founding such academic institutions. The State Universities vary in their special constitution according to the laws and practices of the various Commonwealths which endow them. In general the control of such a State University is left to a Board of Regents, appointed or elected as special State officials. The University in such cases has its special charter, is endowed by the State, and is often subject to more or less legislative interference. In general such an University collects no fees from its students, but is supported wholly by its endowments and by public funds. The mutual jealousies of the various religious bodies present in each State set sharp limits to the introduction of any theological instruction into the curriculum of such a public institution. On the other hand, if the courses of a State University cannot include any distinctively religious or theological training, there is all the freer play for the development, in such places, of technical instruction. A State University accordingly has, as a general rule, an ordinary academic course, leading to the degree of Bachelor of Arts. In addition, it has courses in Engineering, in Science, in Agriculture, and professional schools such as train for Law and Medicine. The State University sometimes comes into conflict with the interests of the denominational Colleges, but in general, as a neutral means for the advancement of learning, and as a public foundation appealing to local patriotism, it receives the more or less cordial support of many, if not of all, the prominent religious bodies present in its neighbourhood. Its students are likely to be under less burdensome supervision than they would be in many of the more conservative denominational Colleges. And the local patriotism just mentioned is usually much concerned to give the State institution numerous facilities, and to raise by all feasible devices its rank and its reputation in the nation at large. The principal foe to progress in State Universities is the not infrequent presence of some interference with their destinies in the interest of partisan politics. How far such interference in any one case goes is something subject to wide variation with time and place. Some State Universities, after years of storm, might seem to have reached a quiet air. Others

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are still in the thick of the political fight. Still others attract afresh, after intervals of peace, the attention of the partisan politicians. On the whole, however, this danger is a limited and, I think, a temporary one. Our Western public is jealous of the honour of its State Universities, and intends to tolerate only a limited partisan interference with their stability and with their patronage. And the older such institutions grow, the more do they tend towards academic freedom, and towards material stability. The American, rightly viewed, is after all very fond of the ideals, and is often even rather fantastic in his devotion to them. The vast material developments of our civilisation and the grossness of some aspects of the life of certain of our great cities, have combined to make some foreigners describe us as merely materialists and dollar-hunters. Our well-known boasts of the magnitude of our various enterprises have also often made us seem to foreigners lovers of mere material bigness. But, as a fact, to love to speak of large numbers and vast sizes is only a crude popular way of trying to express an interest in ideals. The Hindoo mystics used to be very fond of large numbers, and if you want to hear about really vast sizes and enormous distances, you must read Oriental philosophical accounts of divine and metaphysical things, rather than the stories of modern American boasters about their own land. Many of our representative American boasters are, in fact, merely imperfectly trained idealists, who simply have to use what speech is at their disposal to express their deep and sincere respect for the things, not of the material world, but of the spirit; and if you want to understand this deep and genuine idealism of the national spirit of our country, you must consider precisely such facts as the early and rapid growth of the State Universities in the newer portions of our country. You must follow the earnestness and foresight with which the strangers in a new land have again and again set about to establish these institutions. You must remember the high hopes with which they have been founded, the sacrifices by means of which they have often been supported, the proportionately large attendance of ambitious youth by which their early years have often been marked. You must observe the loyalty of their friends, the eagerness for improvement and for enlargement of resources of which their officers are so often inspired; and in the end you will see that these Universities have not been merely formal tasks, forced by tradition upon an unwilling people, but spontaneous efforts to transplant swiftly to a new soil the culture of the older world. The efforts

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are often hasty; the mistakes are often many; and the mishaps of political life a free people have always with them. But for my part, when, as a loyal American, I look forward to my country's future, at just the present moment, it is not so much any gross materialism, nor yet is it the partisan politician, that I fear. It is an even too romantic and fantastic form of national idealism, whose unchastened love for very high things seems to me sometimes only too likely to lead us into ways where, perhaps, some day, if we become not wiser in time, the penalty of trespassing upon the sacred ground of more serious social problems may have to be paid.

But in our State Universities you have examples of the nobler side of this our genuine national idealism. And I am glad to have to lay stress upon this aspect of our life.

The institutions of our third class—the products of private beneficence—have, of course, in some cases been, or have become, only special instances of denominational Colleges. But some of them have been independent not only in foundation, but in administration. And such have played a genuine part in that reform of our academic life whose fortunes are to-night our principal concern.

In the older days, before our Civil War, the typical American College, whatever its origin, was primarily an institution where, as I said, the degree of Bachelor of Arts was given for a course of four years of study. This study was of the familiar classical type. The natural sciences were, in general, but little recognised. The method of instruction was usually rather by recitation than by lecture. The lecture had its place with us in those days, but was not the favourite form of teaching. There might be professional schools, in any instance, affiliated with the College. These prepared their students for Law, Medicine, or Divinity, or, perhaps, in other technical branches, and conferred degrees accordingly. The fuller development of many of the Western State Universities, with their more elaborate system of Technical Schools and Colleges, belongs to a later period. The strength of the best of the older Colleges lay in their individual teachers and presidents. Some of these won wide fame amongst us, and are still well remembered amongst the noblest of our national leaders of the older days. But even before the war, and decidedly more still since the war, two forces were long at work to introduce a higher spirit into our University life than any individual teachers, by themselves, could ever bring to pass. Of these the first was the influence of study abroad, and especially in Germany. It was long the

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custom of some of our most ambitious and studious young men to find their way to a German University. At Göttingen, where the influence of our English-speaking brethren had preceded us, and where those whose speech was English most easily found their way, there is still an American student colony, whose records date back to the beginning of the century. There George Bancroft, afterwards historian and statesman, studied. In Germany, too, the poet Longfellow received an important portion of his literary training. In the middle of the century Göttingen was a favourite resort for the chemists who studied under Wöhler. Our astronomer Gould, our classical philologists Goodwin, Lane, and Gildersleeve, were typical instances of men trained in Germany. In later days Berlin and Leipzig became our favourite Universities. The spirit of the German University—its freedom, its erudition, its specialism, and its ideality—deeply influenced our scholars. From Germany our Transcendentalists, those typical romantic idealists of American thought in the ante-bellum years, won so much of their training and their inspiration as was not directly due to the influence of Coleridge and of Thomas Carlyle. From Germany our returning students brought back ideals of University life and of higher scholarly research, which in the end were extremely potent factors in academic reform.

The second influence was due to the development of the natural sciences. When Louis Agassiz, not far from the middle of the century, crossed the ocean, and took up his work as Professor at Harvard, he soon gathered about him a group of eager and ambitious young naturalists. But he did more than to train these young men. He aided to teach the public, both within the University and beyond it, that one of the most significant of the academic tasks is the enlargement of the boundaries of knowledge by research. The pupils of Agassiz were no longer candidates for the degree of Bachelor of Arts. They were aiming to become men of science, and were looking forward to lives of scientific research. The case of Agassiz was not alone. The coming of the new sciences was felt in many places and for many reasons. The value of these modern forms of study, not only in themselves, but as influences working towards general University reform, was not fully visible until long afterwards. Nor is it even yet any too well understood.

The consequences of this gradual raising of standards and ideals through foreign example, and the further consequences of the spirit of the natural sciences, could not work unhindered until after the

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conclusion of our Civil War. The nation returned to peace in 1865, only to enter upon a period of very rapid expansion. The completion of the new and longer lines of Western railways, the great growth of the North-Western States and territories, the industrial developments throughout the country, furnished resources for new ideal enterprises. The academic ambitions began to prosper more than ever. The time was ripe for educational reforms. Within the larger Colleges and Universities the new spirit appeared in various ways. First there came tendencies towards a diversification of the traditional undergraduate curriculum, by the addition of optional or elective studies of various sorts. You know so well in your own experience the general nature of such tendencies that I need not dwell upon at least the earlier forms which they took with us. Then there came an increasing consciousness, in the older and larger institutions, that they ought to lead the way towards raising academic standards. Courses of study, whether new or old in type, must be (so men felt and said) severer and richer than of old. Degrees must be made harder to win. The preliminary or entrance requirements governing admission to the Colleges, must be increased. Where stronger institutions led the way towards such reforms, the smaller and younger Colleges were obliged either to follow as they could, or to become confessedly institutions of lower grade. For such changes were publicly discussed, and attracted a widespread interest amongst our better minds. Young people at a distance from the stronger and older institutions, such as Harvard or Yale, became ambitious to enjoy the prestige of a degree from institutions whose standards were now understood to be distinctly higher than those of their own local Colleges. In their turn, the more independent or prosperous of these local institutions, especially the State Universities, aimed to follow in the track of the leaders. A process began which has continued to the present time, and which has shown us how much more potent than formal legal enactments the influences of example, of ambition, and of rivalry may be in elevating academic standards. Our very freedom in founding and in administering collegiate institutions—a freedom which has often seemed dangerous, and which has also often actually burdened our newer communities with really very imperfect schools of higher learning—has also proved to be our safety. For if our poorer institutions have been on occasion weak indeed, their weakness has not had the sanction of ancient custom, nor yet of law. They have, therefore, often proved to be plastic institutions, apt to

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undergo reforming changes. The reforming forces have been the example and teaching of the greater Colleges and Universities, the power of public opinion, and even the eagerness of local ambition itself.

Along with the general desire for the raising of standards went a strong interest in the sharper differentiation of the functions of the University proper from those of the typical old-fashioned American College. The terms "College" and "University" have consequently acquired with us in recent times shades of meaning which you may not always at once altogether appreciate. I can illustrate our usage best by the present application of our terms at Harvard. There we still apply the name Harvard College to a portion only of the institution now known as Harvard University. But the College with us means neither a building or group of buildings, nor any completely separable academic body having a Faculty or Senate, or even a system of courses that is wholly its own. By Harvard College we mean simply so much of our academic organisation as is concerned with the giving of the degree of Bachelor of Arts, and with the administration of the instruction which leads to that degree. A Committee of our general academic Faculty of Arts and Sciences, a Dean, and a few other officers are exclusively devoted to the care of Harvard College, taking the word in this its present sense. But the general Faculty of Arts and Sciences has charge of much other instruction besides that which leads to the Bachelor's degree; courses given to the students of Harvard College may also form part of the work of other parts of the University; and the students of Harvard College have no building or other visible portions of the University which are in any peculiar sense their own. They are simply the men studying for the Bachelor's degree. The term Harvard University, on the other hand, we use in two ways. We mean by the term, taken in an inclusive sense, the sum total of the various professional schools when taken together with the College. But, finally, by the University, taken in an exclusive sense, as opposed to the College, we often mean simply so much of our institution as has to do with degrees of a higher grade than the Bachelor's degree.

Elsewhere than at Harvard our American usage more or less varies. On the whole, however, we everywhere now regard as a College any institution, or any more or less separately organised portion of an institution that is devoted to giving either the degree of Bachelor of Arts or any degree, whatever its title, that is of the

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rank of a first degree. By the term University we usually mean either a group of academic bodies organised together under one head, or else (and this latter usage is frequent in our literature) we mean an institution, or portion of an institution, devoted to giving degrees of higher professional grade, such as the degree of Doctor of Philosophy. Very seldom with us is the name College now associated with a special group of buildings within the larger whole of an University; and the type of organisation of the English University, with its various distinct Colleges, is nowhere exactly repeated amongst us.

During the period of reform of which I was just speaking an insistence that the function of an University went beyond the task of teaching undergraduates, and had rather to do with the instruction leading to higher degrees, and with the training for research work, and with adding to the sum total of scientific knowledge—all this insistence, I say, frequently appeared in our literature, and was a powerful motive for reform and improvement.

The conflict between the new sciences of nature and the older courses of study, led first, especially in Harvard, and then elsewhere, to a constantly increased use of what we name the elective system—the system which leaves the student more and more free to choose for himself what combination of studies he shall take, even when he is working for the Bachelor's degree. Of the earlier stages of this elective tendency I spoke a moment ago. Its later stages have gone farthest at Harvard, where at present, except for certain required work in English composition, and for some required study of modern languages, no effort is made to control freedom of election beyond what the necessary order of the instruction in any one subject must involve. A student might with us take the Bachelor's degree, after once he had passed his admission examinations, upon the basis of a series of courses, which would have to include the required English composition and elementary modern language work, but which might otherwise be composed exclusively, say, of chemistry, Sanskrit, and engineering—provided only that he could find the requisite number of courses, could avoid conflict of hours, and could arrange his courses in each subject in the order required by the nature of that subject. Such a student, in order to enter with us, would indeed have to pursue a preliminary course in the schools, such as in general our students do not finish until they are well over 18 years of age—our present average age of entrance is 18 years and 9 or 10 months. At entrance our student would present at least one ancient language.

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If he did not present both Latin and Greek, he would have to furnish, as equivalent for the omitted ancient language, a decidedly advanced elective equivalent in science. His entrance examinations would be decidedly numerous and severe. His work with us for the degree, after entrance, would in general take four years, with about thirty weeks of actual instruction in each year, over and above the weeks devoted to examination. In these four years he would perform satisfactorily work that we describe as the equivalent of 18 full courses of study—a full course meaning with us three hours of lectures a week for the entire year, together with the required study in connection with these lectures. Laboratory courses in the sciences are estimated upon the basis of three hours of laboratory work as the equivalent of one hour of lecture, when taken together with the necessary study in a lecture course. The quantity and grade of work done is thus with us at present the basis upon which the Bachelor's degree is given; and, apart from the mentioned requirements in English composition and in the elementary study of modern languages, election is absolutely free, upon the basis now described.

I have anticipated the outcome at Harvard of the modern movement towards freedom of choice in undergraduate studies, because I wished to indicate at once the nature of the whole tendency. The growth of general interest in such breadth of range in the selection of studies was rapid in the years between 1870 and 1885. Few of our higher institutions have gone so far as Harvard in this respect. But all have tended in the same direction. And it is in this elective system that our representative Universities are seeking the solution of the complex modern problems involved in the conflict of studies. Our own doctrine at Harvard has long been that you cannot determine what combination of subjects a student needs unless you consider each individual case for itself. We offer as we can to advise individuals about their choices. But we have abandoned authoritative interference with free choice in this respect. Nor do we at Harvard, as you see, any longer attempt to limit freedom by arranging our courses in groups, and requiring a student to choose his group, and then to keep to the combinations provided within that group. The amount and grade of the work done for the degree, and not the grouping of the courses, must henceforth be our basis for the award of degrees. In other American Universities, to be sure, various forms of the group system, and various more limited types of the elective system, still survive. The tendency, however,

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is towards freedom of choice. And the more advanced the requirements of modern life become, the more, I think, must the system of the free choice and the individual grouping of studies tend to triumph.

I have now spoken of some of the interests that became prominent during the period of reform. I must still sketch a few of its most notable instances. In 1876 a new University—the Johns Hopkins University at Baltimore—was opened. Johns Hopkins, a citizen of Baltimore, of Quaker ancestry, had left at his death a sum of about £1,400,000 to be divided equally between two affiliated institutions, one of them to be an University, the other a Hospital. The University was first founded. The Hospital, in close relation to the Medical School of the University, has since been completed, and brought into operation. The Johns Hopkins University was the first academic institution to announce that its principal purpose would be the training of advanced students, who already held the Bachelor's degree, or some equivalent degree, and their preparation for higher work in research and in teaching. Financial misfortunes, due in part to a single unhappy clause in the founder's will, have in later years diminished the power of the Johns Hopkins University to develop its original plans. But it is still known, both at home and abroad, as an institution for higher learning, for research, and for the training of academic teachers and original investigators.

The influence of the example of the Johns Hopkins University proved to be an important factor in the movement that has since rapidly followed. At Harvard, for reasons that I have already mentioned, the ideal of training advanced graduate students had been prominent since the days of Agassiz. But in the years since 1880 the new tendency to favour the studies of the higher or University grade rapidly progressed, and proved effective in reorganising the system of instruction in many important features. Since 1889 Harvard University has a well-organised graduate school, with a Dean of its own, with a Board or, in effect, a Committee of the General Faculty administering the affairs of this school, and with rather more than 300 students, all holders of degrees, working, in various departments of special research, for higher degrees—in particular for the degree of Doctor of Philosophy. The latter degree is given with us for what is officially defined as "long study and high attainments" in some special branch of science or learning. The powers and attainments of the candidate for this degree must be

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proved both by record of work and by special examinations, as well as by the production of a thesis which contains an original contribution to knowledge in the region to which the candidate's studies are specially devoted. We confer the Ph.D. degree, as a fact, upon some 30 or 40 candidates each year. Classical philologists, historians, modern philologists, psychologists, chemists, and naturalists are at present prominent in numbers amongst the classes of scholars who earn the degree. But there are many other types of candidates. In order to organise the higher studies for the Doctor's degree, we have formed at Harvard fourteen different and relatively independent divisions of our Faculty of Arts and Sciences, each one of which has its own Committee on Higher Degrees, and each one of which directs the work of its own specialists, examines its candidates, and reports to the Faculty upon their attainments. These so-called divisions are themselves broad in scope. They cover such ranges as are indicated by the terms Ancient Languages, Modern Languages, Philosophy, Biology. For purposes of guiding the special work itself, each of these divisions has departments. The division of Ancient Languages, for instance, has separate departments for Semitic Languages, for the Indo-Iranian Languages, and for the Classical Languages. Each department has again its own Committee. A candidate for the degree of Ph.D. has his special work directed, in consequence, by a very few men, with whom, in laboratory or in the small advanced graduate courses, called with us seminaries, he is in close contact. His department Committee sees that his work is properly done. When he is ready to be examined for the degree, he comes before the larger Committee on Honours and Higher Degrees of his division. This Committee, even in the smallest of our fourteen divisions, must contain at least five members. The largest amongst our fourteen divisions contain as many as twenty or twenty-five members. The Committee of the division then report on the case to our large general Faculty of Arts and Sciences, and the degree is voted upon the recommendations thus made.

A highly elaborate system, as you see, has thus with us developed as a necessary part of the organisation of the graduate studies. The reaction upon the organisation of the undergraduate studies themselves has been important and manifold. From the most elementary courses upwards we more or less distinctly feel that we are training men some of whom may go on to the Doctor's

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degree, and become original workers in science under our own charge. Most of the instructors at Harvard have to do both with undergraduate work and with advanced graduate work. The consequence is that, as the Johns Hopkins University already proved, the entire spirit of the whole institution is raised when a distinct and conscious part of every instructor's work is the training of productive scholars as well as the more elementary teaching of youth. The undergraduates themselves are aided by the presence of this organised system of advanced work. Their laboratories are in consequence better equipped; their libraries are better supplied; their teachers are inspired by the resulting nature of the tasks; and the undergraduates themselves are more frequently encouraged to make in their own way a beginning in independent research so soon as they can.

This development of graduate study with us at Harvard has run parallel with movements in the same direction elsewhere. The years since 1880 have seen this, which we often call the distinctively University movement in our country, prominent not only at the Johns Hopkins, but also in the life both of the older Universities, such as Yale, and of the newer Universities, such as Cornell. The recently-founded University of Chicago, happily and repeatedly endowed already by private benefactors, has made at once its beginning upon the lines first laid down by the Johns Hopkins University, and by Yale and Harvard. At such new Universities as the one lately founded in California by Stanford, where conditions forbid indeed the immediate predominance of higher graduate work, an interest in research is still from the beginning encouraged. The same is already true of many even of the smaller local Universities.

But if you ask what our young graduate students, candidates for the degree of Doctor of Philosophy, are hoping, in a purely worldly sense, to accomplish for themselves by their higher studies, my answer is that with us the Ph.D. degree is already generally recognised as a pre-requisite to any appointment as a College teacher. Here, as you see, we reap the fruit of that large development of smaller Colleges in all parts of our country—a development whose relatively ungoverned freedom used to be regarded by our foreign critics as a reproach to our whole academic life. For reasons that I have already set forth, these smaller local Colleges, denominational or otherwise, are ambitious to follow the course of progress, and to maintain their local prestige. Accordingly they are eager to en-

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large their resources for instruction; and the very freedom of their various foundations makes it the more possible that many of them should do so. The partisans of the very poorest amongst them delight to assure the young man who is about to leave home that, if he will but stay, he can get as good an education here in his own province as at Harvard or at Yale, or anywhere abroad. Now, such assurances, made to express the local pride of a far Western community, or of a small religious denomination, may seem mere vain boasts. But it is a sort of boasting that in the dealing of such institutions with our public proves both expensive and in its results salutary. For, in the long run, the local College needs its new laboratories, courses of instruction, and teachers, in order to make good its boasts. In such wise it is, for instance, to mention a case belonging to my own department, that a new branch of very profitable inquiry, Experimental Psychology, which is hardly twenty years old amongst us, has already spread from the larger Universities to the smaller Colleges, and has founded its laboratories in the most unexpected places.

Well, these smaller Colleges need new teachers. They draw these from the graduate students of the greater Universities; and in turn the graduate candidates for the doctorate at Harvard, Yale, Cornell, at Columbia University in New York City, or at the Johns Hopkins University, are preparing for the profession of teaching in some special department of research, just as the members of our Schools of Law and of Medicine in the various Universities are preparing for their own professions. In other words, with us the Ph.D. is the teacher's degree, as well as the degree of the scientific worker. Not all our Doctors of Philosophy, however, become teachers. The Government Scientific Bureaus, and the various similar organisations of the individual States, and in an increasing degree the various technical industries of our scientific age, offer opportunities for highly-equipped specialists to serve and to produce.

Meanwhile, of course, our undergraduate bodies remain, in general, by far the largest portions of our academic population. The movement since the later seventies has been characterised by a very large increase of their numbers throughout the country. At Harvard they have for some years numbered in the neighbourhood of 2,000. Our entire academic community exceeds 3,000. We have in the whole University, including the professional schools, nearly 400 teachers. Our large Faculty of Arts and Sciences, which has charge

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of the undergraduates and of the candidates for the Doctorate of Philosophy, has in the neighbourhood of a hundred members.

But, as you see, our undergraduates are by far the most numerous of our charges. Except at the Johns Hopkins University, and at the Clark University for graduate students (at Worcester, Massachusetts), this predominance of the undergraduates is necessarily a feature at all of our Universities. The consequence has been that the later University movement has been throughout deeply interested in the problem of our relation to Secondary Education, and to the various types of preparatory schools with which we have to do. Into the resulting tendencies I have no time here to enter extensively. The subject forms a specialty by itself. Our American public is very deeply interested in popular education, and always has been. The new University movement has, however, meant a very notable transformation of secondary education. Its standards have been raised to meet the new academic conditions. The ranks of its teachers have been recruited from the Colleges by men trained in the new ways, and having the newer academic ideals before their eyes. The range of elective study has been broadened in the schools. Their mutual co-operation has been furthered by the mediating influence of the Universities. Admission to the University takes place, at Harvard, at Yale, and at several other of the strongest Universities, only by means of examinations determined wholly by the Universities themselves. In the Western States many of the State Universities, and of the other collegiate institutions, admit, as we say, upon certificate. That is, they accept students upon the result of the examinations conducted by certain authorised preparatory schools, which determine, under a general academic supervision, what ones amongst their own students are ready for the University. This certificate system finds no favour at Harvard. But it is often very effectively administered in the West, and it in such cases works well. In all regions, however, we are much interested in establishing close relations with our secondary schools, although we shall never have any general and centralised legal system, such as that of Germany, for determining the precise relations between secondary and academic education. Our dependence here, as elsewhere, is upon natural evolution, enlightened public sentiment, and the progress of science—taking the word science in its larger sense.

Throughout the country, as the standards have risen, the average

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age of entrance to the University has risen also. At Harvard, as I before said, our average age at entrance is 18 years 10 months. One takes his Bachelor's degree when nearly 23. In order to reach the professional degree in Law, in Medicine, in Divinity, or in Philosophy, one must study at least three—in most cases four—years after the Bachelor's degree has been attained. Our best professional schools are now in a number of cases open only to holders of the Bachelor's degree, and are thus all alike graduate schools. Our young men of professional ambitions naturally complain at being only at the very threshold of their life-work at 27 years of age. But very many of our undergraduates do not aim at the professions, but at business careers, and it is gratifying to find how many of our successful merchants, financiers, or public men are, even in our reputedly so materialistic nation, graduates of Colleges. The newer academic movement tends to make this increasingly the case.

The growth of the undergraduate departments has meant, in our largest institutions, an increasing organisation of undergraduate life. The American undergraduate at Harvard has at present a decidedly complex social life. Into an account of this life I can hardly undertake, upon the present occasion, to enter. Suffice it to say that with us, as with you, the University is the training place not only of scholars, but of those who are to be men of the world and of action.

And herewith I must bring to a close these hastily-collected observations. They have been intended to give you a larger view of the meaning of our American world, and a fuller knowledge of its more hopeful tendencies.



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*February* 20, 1899.—Dr. JOSEPH OGILVIE, *the President, in the Chair.*

Mr. C. SANFORD TERRY, M.A., communicated a paper entitled, "Shakespeare the Historian."

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## *Shakespeare the Historian.*

By Mr. C. SANFORD TERRY, M.A., Lecturer in History in the University of Aberdeen.

In one of his luminous lectures, delivered some eighty years ago, Coleridge described the History Dramas of Shakespeare as being compounded of the early epic drama and the later presentations of pure tragedy. By that he implied that the dramatist, in his living pictures of historical events, attached equal emphasis alike to the idea of an over-controlling destiny or providence, and to that of uncontrolled individual will, as the two forces which, in the individual, as in the aggregate of individuals or nation, determine the resultant course of human affairs. "By this means," remarks Coleridge, "Shakespeare bequeathed as a legacy the pure spirit of history."

I will not attempt to discuss whether the due and equal regard to these two forces—variable human will and invariable providential direction—does or does not indicate, as Coleridge declares it do so, the pure spirit of history. The attempt to present history as a guide-book to conduct and morals is likely, too often, to lead to a good deal of distortion. On the other hand, the history of human affairs becomes more and more Lilliputian in proportion as we limit and confine the stage upon which the drama is played. The Greek, as he sat under the open sky and followed the woes of an Œdipus or an Orestes, while he watched the unravelling skein of a human tragedy, yet feared and reverenced in it the manifestations of that over-ruling power which, in its inscrutable decree, consigned Œdipus to his doom, and sent its dire agents, the grey, time-worn maidens, to pursue Agamemnon's avenger to Athene's heights.

It is somewhat of this spirit, this enlarging of the atmosphere pervading the lives and actions of humankind, which breathes in Shakespeare's History Dramas, and inspires, if in less degree, that sense of awe, of contact with the inscrutable, which the tragedies of Sophocles or Æschylus impress on us. True, there is no *deus ex*

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*machina* ponderously swung on to trumpet forth his oracular message. But, none the less, the sense of a stern, adamantine decree is constantly before us. It confronts Macbeth, as it confronts Œdipus, when he faces Macduff:—

MACD.—"I have no words,—
My voice is in my sword; thou bloodier villain
Than terms can give thee out!"

MACB.—"Thou losest labour:
As easy may'st thou the intrenchant air
With thy keen sword impress, as make me bleed:
Let fall thy blade on vulnerable crests;
I bear a charmed life, which must not yield
To one of woman born."

MACD.—"Despair thy charm;
And let the angel whom thou still hast served
Tell thee, Macduff was from his mother's womb
Untimely ripp'd."

It appears again, if less mystically, in the Soothsayer's solemn warning in "Julius Cæsar." We get it equally in the "King John." The drama of a troubled, disastrous life—the greatness of position and promise, the littleness of fulfilment—finds its expression in the young boy Henry's mouth, as he contemplates his father lying dead in the gardens of Swinstead Abbey:—

"Even so must I run on, and even so stop.
What surety of this world, what hope, what stay,
When this was now a king, and now is clay?"

But the broader problem of the futility of human effort in the struggle with destiny finds equal treatment. It is foreshadowed in the first scene of the play, when Chatillon, the ambassador from Philip of France, addressing John as the "borrowed majesty of England," bids him

"Lay aside the sword
Which sways usurpingly these several titles;
And put the same into young Arthur's hand,
Thy nephew and right royal sovereign."

Here is the first indication in the English History Dramas of that principle which gives the tragic note of destiny throughout the cycle. "The majesty that doth hedge a king," so Shakespeare holds, is not a human gift, it is not solely the appanage of birth or merit, it is the compound of both. And yet more, though it must satisfy the con-

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ditions which Wykliffe attached to the exercise of "dominion," equally was it exalted, in Shakespeare's view, to a sacredness of origin and trust such as Wykliffe had held. John, in Shakespeare's inaccurate estimate of his position, was an usurper. His crime, not so much that he proved himself incapable of rising to the true function of kingship, not even that he was the murderer of Arthur, but that he had raised his hand, like Macbeth, against an institution which rested upon divine sanction. As the slayer of man, he was the enemy of man. As the slayer of his rightful king, he had offended against those over-ruling laws whose infringement shall consign the offender to the Furies. Not even the sternest and most pressing political necessity can wholly condone such an offence as that. In his Richard II., Shakespeare, though with infinite tenderness he brings out the loveableness of a character as interesting, if less complex, than Hamlet, yet with equally convincing art he shows him unking-like, unpractical; like Hamlet, a dreamer, self-centred, introspective; like John, incapable of fulfilling Fauconbridge's eager hope that he may shew himself "great in act as thou has been in thought." We recognise, as Shakespeare intends, the political necessity of Richard's deposition. But Nemesis follows hard behind. In pulling Richard down Bolingbroke had served the nation well. None the less he had committed the crime of John, of Macbeth. On his own head, therefore, was the punishment, and the sturdy, self-confident Bolingbroke becomes the fear-haunted Henry IV. Nay, the sense of fear, of impending retribution descends to his son, the fifth Henry, whom we find praying on the eve of Agincourt:—

> "Not to-day, O Lord,
> O not to-day, think not upon the fault
> My father made in compassing the crown!"

Throughout the stormy years that follow, as the "drum and trumpet" story of Henry VI.'s reign is unfolded, down to the death of the last Yorkist king on Bosworth Field, the dramatist lifts the sordid story into another plane, where higher, over-ruling forces shape the actions of men. Not till the day when the image of royalty, long defaced, is restored in one in whom the rival claims of the two contending factions united, does the golden age rise upon England prophetically foretold by Cranmer.

It is, then, we may say, the sense of awe, the pervading atmosphere of great, Heaven-controlled issues, that gives to Shakespeare's

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treatment of history a something of reverence which lifts it from the category of the text-book, and presents it a suggestive and inspiring commentary. For all their nearness to us, his heroes are fighting on the plains of Troy; the shuddering murmur of the Eumenides is ever punctuating their careers. Such a distinction, to my mind, must assure to Shakespeare, supreme among dramatists, a place among the classics of history. It was the confession of the great Marlborough that his chief knowledge of his country's history was drawn from Shakespeare. His avowal would be that of hundreds since. And the fact marks a characteristic of Shakespeare as a historian, which emphasises yet further the obligation which rests upon every student of history to turn to him as an inspiring, albeit fallible, guide. Granted, as Coleridge has put it, that we are as prone to take our history from Shakespeare as our theology from Milton. The fact is hardly surprising, by no means regrettable. For, as one of Shakespeare's commentators has pregnantly remarked—"there may be in the poet a higher truth than the literal; men may in the poet better study history, so to speak, after nature," than in the annalist. There is between the two men the same difference as exists between a landscape and a map. The one lives, the other tabulates. The one is a reality, the latter an inventory. For, after all, the facts of history are chiefly important, not in themselves, but in the wider considerations they suggest. They are geological outcrops, important in their suggestion of what lies beneath. Inaccuracy in the presentation of events, suppression or distortion of facts, faults which may not be tolerated in the annalist, may be almost pardoned to him who succeeds in giving us a picture and not a catalogue. We do not care to enquire whether Turner produced this or that effect with his brush or his thumb-nail. The effect is there, and we are conscious of, and satisfied by the consciousness of its truth.

And so of Shakespeare's History Dramas, riddled with inaccuracies they undoubtedly are, yet in the deep insight which distinguishes them, the broad grasp of great issues, we can discern that quality which impels us to turn from the prosaic text-book to the speaking pages of the dramatist. I do not suggest that quality which appealed to Froude in Shakespeare—his dramatic intensity, his insistence upon the triumphant operation of a moral law. But rather that broad human treatment of human affairs, the very negation of those dry-as-dust methods, the employment of which has at

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times presented history as the dreariest bugbear among the sciences. And, further, we may not forget that it was from one who played no part in political affairs, whose library of history books was of the barest, who read such books as he consulted as a student of his own kind rather than of history, that there has come to us so luminous a commentary on a stirring period of our national progress. It has often struck me that, in regard to the History Dramas at least, if the fact were thoroughly grasped, that the mind which conceived and framed them was not that of the scholar, informed by the knowledge of books, but one keenly observant, sympathetic, philanthropic in the wider sense, and, above all, knowing its own human kind—if such were granted as the essential qualities which distinguish his work, some end might be put to that recurrent craze which denies to Shakespeare the authorship of his own work on the curious plea, that there is no evidence outside his own work to prove him sufficiently clever to have produced it.

In Shakespeare's attitude towards history, then, these two characteristics appear particularly in his work: firstly, the heroic atmosphere in which the story is unfolded—a *Götterdämerrung* of English history; and, secondly, the sympathetic human treatment of national events and issues.

But it is less with Shakespeare as a general historian, and rather with his English Dramas, that I wish to deal here; and that with the object of obtaining some idea of his value as a guide through the scenes he describes.

The ten English History Dramas deal more or less exhaustively and consecutively with about one hundred years of English history —from 1398-1485—from Richard II.'s deposition to the third Richard's death. To this period—dealt with in eight plays—Shakespeare has added a prologue and epilogue—the "King John" and the "Henry VIII." With some considerable gaps, then, his history of England extends from the early thirteenth to the middle of the sixteenth century. Amid the numberless opinions which the critics have advanced, one fact only appears to stand out incontestably, namely, that the plays were not written in the chronological order which they hold in history. Much unsubstantial nonsense has, in fact, been written in the endeavour to read into the cycle as a whole the careful elaboration of a pre-arranged historical plot. Schlegel, indeed, suggested that the "King John" and "Henry VIII." were w[illegible] the definite purpose of rounding off the cycle as a

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whole, very much as a famous musician is said to have crept from his sick-bed to complete a chord left unresolved. But, though it is admitted that "Henry VIII." was the last written, the two plays are clearly distinguished from the rest in the obvious spirit which prompted them. Both of them—and herein they are distinguished from any others of the cycle—reflected the feeling of the period in which he wrote on matters of high ecclesiastical politics. Between Elizabeth, the target of many futile Papal shafts, and John, who was at least as brave as Elizabeth and her father in his early opposition to the Papacy—between these two there was an obvious parallel. In the "Henry VIII.," again, the action-motive of the play centres in Wolsey, and it is typical of the essentially Tudor spirit which inspired Shakespeare—I mean the newly realised consciousness of a powerful middle class—that he presents Wolsey as the type of an extinct ecclesiastical feudalism, as he had also, with equal bias, but with less distinction, represented Warwick as the type of an extinct political and social order in the "Henry VI." He is equally unfair to both—but how curiously parallel he seems to have regarded their careers appears in the almost identical ideas with which he clothes their last utterances. "Henry VIII.," in fact, grew partly out of the strong appeal which such a character as Wolsey would make to a people already on the verge of that protest which brought Charles I. to his doom, partly in that it offered a somewhat easy method of doing homage to both Elizabeth and James.

We must admit, then—and modern criticism adopts this view—that considerable confusion has arisen from the persistent endeavour to read into Shakespeare a consistency and uniformity of design and execution in regard to the History Dramas. For it is not necessary for the comprehension of the series as a whole to accept the much-laboured point, that the dramatist set out with the intention of writing a continuous epic of the period which he actually completed. Rather, I imagine, he chose his materials as he found them, ready to his hand, and presenting episodes in the history of his country which were already popular. And though, apart from his consistent treatment of history in general, we can discern a certain unity of design throughout the History Dramas, in two directions at least, it is a very forced argument which bids us regard Shakespeare as a professed historian, subordinated to an idea, a theory, which it was his mission to illustrate within the limits of a certain period. True, like his heroes, Fauconbridge, Bolingbroke,

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John of Ghent, Henry V., he is keenly patriotic. True, that he writes with a touch of latter-day Jingoism which had a deeper intention than to draw a cheer from the groundlings. But he never obtrudes the lesson or the moral. He does not pose as the professed historian. He is first and foremost a dramatist. His genius, and not his professed purpose, converted, for those who chose to look deeper, the theatre into the lecture-room.

Let us dismiss, then, any idea of Shakespeare the pedagogue from our conception of him as the historian. And the necessity for such an admission is the more imperative if we consider the materials from which he drew that information which in dramatic form he imparts to us. His History Dramas are inspired from one of two sources, both equally accessible. They are either adaptations of already existing plays on the same subject, or are constructed—one might almost call them dramatic translations—from the Tudor chroniclers, and notably Holinshed, whose edition in 1577, for instance, gave English readers for the first time that knowledge of Scottish history upon which Shakespeare drew for his "Macbeth." But, whichever source he drew upon, Shakespeare made but little effort to verify the accuracy of the authority on whom he relied. "King John," for instance, abounds in omissions and inaccuracies, which might with little effort have been avoided had his purpose been to write a history and not a play. It is usually pointed out with some tolerant surprise that in that play there is no mention of Magna Charta. The reason is simple. Shakespeare found no mention of it in the old play from which his own was constructed. I can readily conceive that not without difficulty he might have convinced a modern examiner as to his knowledge of what we hold to stand as the foundation-stone of English constitutional liberty. But, be that as it may, the action of his own play did not demand that scene at Runnymede, and he rested quite content with history as he found it in the materials ready to his hand. Further, in the plays which were built up upon the writings of the professed historians of the Tudor period, he neither made nor recognised the necessity of any effort to verify the accuracy of their facts, or to criticise or correct their judgment. The "Richard II." follows almost literally the second edition of Holinshed's Chronicle. The "Henry IV.," apart from the original play on which it was constructed, depends for its facts upon Hall's Chronicle. "Henry V." and "Henry VI." show, for the most part, the same combination.

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Richard III.'s character is drawn almost literally from More's prejudiced "Life," while Cavendish's "Life" of his master, Wolsey, and Fox's "Acts and Monuments," may have supplemented the Chronicles in providing materials for the "Henry VIII."

One is struck, therefore, as much by the smallness of the "stock-in-trade," so to speak, with which Shakespeare carried on his business as historical playwright, as by the wonderful breath of living reality which he has breathed into the dead bones of the chronicler and annalist. And it is out of the paucity of his materials, to some extent—complete indifference no doubt he actually felt for such minor details—that the historical blemishes in his work appear. There was in him by no means the accurate spirit of the "painful antiquary." "Our author," says Dr. Johnson of him, "who gives to all nations the customs of England, and to all ages the manners of his own." The plays are riddled with anachronisms. We may quarrel with his treatment of characters. His Richard III. may be a libel. His Kingmaker, relatively to his actual stature, may appear but a dwarf in his pages. Henry V. may never have fuddled his brains in Eastcheap. Henry IV. and his father Ghent may appear to us rather as scheming politicians than high-souled patriots. Or we may turn to his treatment of events. "King John" is almost hopelessly inaccurate. The Wars of the Roses are cut and pruned in parts almost past recognition. "Henry VIII." without the Reformation seems as incomplete as "Hamlet" without Hamlet. But in spite of, one might almost say by reason of these blemishes, the plays are great—great, as someone has written, "because there is no care of the centuries in them." It is a uniform and robust picture of England that he calls up throughout, one such as Carlyle has pictured—"a green, solid place, that grew corn and several things." The dramatist stands as another Homer, knowing, in Heine's phrase, "no difference between history and poetry"; fulfilling Bacon's definition of dramatic poetry, as "history made visible . . . an image of actions past as though they were present."

But, so far, I have dealt rather with Shakespeare's equipment and temperament, as it were, as a historian. I have ventured to suggest that, while we may be far from impressed by his accurate knowledge of historical detail, while we may even admit the possibility that Shakespeare, historical lecturer to his own and future generations, learnt his history in writing it, there yet stands out over all such minor defects the surprisingly clear conception which pos-

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sessed him as to the real function of history, its treatment, and its message. I can imagine that, like Brindley, the great engineer, who frankly claimed that rivers had been created in order to feed canals, Shakespeare, had he been asked the purpose of history, would have replied with equally ingenuous frankness, "That I might write my plays, make the dead bones live, convert them into living realities, real men and women, and no mere historical abstractions!"

But, it may be urged, surely this conception of historical treatment does little more than give Shakespeare a place among the narrative historians of the old school, of whose "pompous, conventional romancing" Professor Seeley used to complain. How, one asks, does he fulfil what Seeley regarded as the proper methods of historical treatment? "In history," Seeley writes, "everything depends on turning narrative into problems." And herein Shakespeare equally recognised that the proper and adequate exposition of a historical subject demanded something beyond a mere pictorial setting forth of the narrative. But there the resemblance ends. For Seeley writes as a historian, dealing with past history with his eye on the politics of the present and future. Shakespeare writes as a playwright for whom past history offers material for dramatic treatment. The problems which present themselves to Seeley for solution are grouped round events. Such problems as present themselves in Shakespeare, on the other hand, centre in individual character. And to say this by no means belittles the utility of his Book of English History. On the contrary, it expresses the real value of it as an historical hand-book. For the life of the nation is the life of individuals in the aggregate. The great crises in a nation's history do not differ, save in complexity and magnitude, from those which befall the individual. This is a truism one remarks, but none the less how many of us are careful to apply it? We are far too prone to take the facts in our past history for granted, and thereby lose entirely the human interest which attaches to them. As a corrective to such an attitude, apart entirely from certain problems of wide national significance which are bound up in the characters in his plays, Shakespeare's History Dramas have much to say even to the advanced student of history, who is in danger sometimes of forgetting the human standpoint.

In his contribution to English history, then, Shakespeare holds a high place, not because he brought to bear on his work patient historical research, laborious exactitude, or scholarly impartiality of

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treatment, but because he dealt with history as a student of human nature, wrote of it with the light of human experience flashed on his pages, laid bare its secrets dispassionately as became the philosopher, and yet idealised and beautified it as became the poet.

But without unduly imposing on the ten English History Dramas an intentional unity of design, there are two or three characteristics which attach to them, which justify the view that Shakespeare had before him the desire to present more than a merely picturesque narrative of events. In other words, that so far as was possible under the limitations which his main purpose imposed upon him, Shakespeare, in and through his characters, designed to illustrate certain characteristics of national life which he regarded as essential for national stability and progress.

And first, it is to be remarked that the period with which the ten plays deal lends itself very naturally to the enunciation of that gospel of robustness—if one may venture upon such a phrase—of which Shakespeare is a very emphatic evangelist. It would be by no means inapplicable to give to the plays as a series the title of "The Expansion of England." For the period they illustrate is no less. They begin at the point at which the nation had, as it were, reached its majority. Of Magna Charta itself we hear not a word, but that spirit of national consciousness which typified it breathes in the character of Fauconbridge, and finds expression in his proud boast:—

> "Come the three quarters of the world in arms,
> And we shall shock them. Nought shall make us rue
> If England to herself do rest but true."

Such is the period and such the spirit with which Shakespeare opens. Here, too, one may say, is the text on which what follows is the commentary. So we pass to the great struggle with France, the test of England's manhood, through the dreary civil wars out of which emerged a new England, no longer the England of the baron, but the England of the merchant, the yeoman, the great body of the Commons, on whose shoulders English interests beyond the seas, not less than English interests in the Parliament House, were to be borne in the days of the Tudor and the Stuart. Hence, in Cranmer's soaring prediction in the "Henry VIII." we read no empty flattery of James I., but the poet's indication of that wider path which—her manhood vindicated over France, Spain, and the Papacy—lay before his country in the future. Here, then, I would suggest, is one

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characteristic of the cycle as a whole. Shakespeare gives us no word of Magna Charta, of the Reformation, but he illuminates them by glorifying the spirit of which they were the outcome. He is a political optimist, assured of his country's great destiny, and using his characters to proclaim his own absorbing patriotism—Fauconbridge, John of Ghent, Bolingbroke, that "mediæval John Bull in armour," as Dowden calls him, and Henry V., the very incarnation of English virility and robustness. There is a breath of the wind that dispersed the Armada about all of them. But this idea of the self-containedness, so to speak, of England goes deeper. As you read the plays you notice how closely the idea of individual virility, expressed in those characters I have named, is associated with the wider destinies of the nation. In the "King John" England frees herself from foreign foes and complications, and Fauconbridge is both the agent and the expression of that effort. Bolingbroke, "one still, strong man in a blatant land," as he is described, rescues her from the domestic complications which the deadening rule of a weak king entailed. In the "Henry V.," the whole manhood of the nation is expressed in the character of the king—an idealised Tudor. In the "Henry VI.," the loss of national vigour and purpose appears in the weak, monkish character of one whom his impolite contemporaries designated "a crowned calf." In the "Richard III." the king does ample penance for the crimes of which history accuses him, by standing forth as the embodiment of strength without conscience, of ambition without patriotic purpose. He appears as the glaring example of the fundamental necessity expressed by Fauconbridge—that is, of fidelity to a single national design and endeavour.

If, then, Shakespeare has left us types of individual character throughout his plays of bewildering variety, they may also be regarded as types of national character. It is in them, rather than in the narrative, that we have to look for his real conception of the significant meaning of the periods with which he deals. It will be noticed that his outlook is consistently that of the Tudor Englishman. None the less, so far as it is legitimate to read into the cycle an intentional unity of design, the English History Dramas do clearly set forth that type of national character and purpose which confronted Shakespeare himself, which he looked for in the future, and equally postulated of the past.

There is a second aspect from which we may regard the plays as

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possessing a unity of purpose and design. Schlegel has described the ten plays as "a mirror of kings which should be the manual of young princes." And, in fact, the plays do form a "Book of Kings," a "Mirror of Magistrates," a contribution to political philosophy, useful and suggestive as an attempt to set forth both the origin and sanction of royal power, as also the essential qualities requisite in the monarch. Viewed in this aspect, the plays may take their place beside such treatises as those of Locke or Hobbes, while they furnish a theory of kingship which is infinitely more rational and intelligible than either.

And herein, just as his survey of England's past history was dominated by that robust self-confidence which characterised Tudor England, so also the Tudors furnished him with the rule by which he not only measured their predecessors, but also set up a type, an ideal of kingship. The essential qualifications in kingship which he presents are those which he found in the Tudors, as the Tudors themselves satisfied the two qualifications on which the English monarchy had rested for centuries, namely, birth and worth, descent and merit. There is no juggling here with an assumed state of nature and an original contract, as in Hobbes or Locke. The basis of royal power, Shakespeare holds, rests upon hereditary descent; the justification for the exercise of it resides in the capacity of the individual. But the two qualifications must be combined in the ruler if the nation he administers is to fulfil its appointed destiny. Nor in Shakespeare is there any regard expressed for that other principle, which, in fact, was as old as the kingship—the sanction, I mean, conferred by Parliamentary election. Henry IV. possessed that, and it is worth noticing, since it explains the prevalent attitude in Shakespeare's time, that he makes no use of that fact to extenuate Henry's treatment of Richard and his own usurpation. On the other hand, he presents himself in complete harmony with those exalted views of prerogative and divine right which were to work the ruin of the Stuarts. Richard II. speaks in the tones of a James I., and the sanctity of kingship is exalted throughout. In the career of Henry IV. stands forth an irony as subtle as any in Greek drama; a kingly character usurping the throne manifestly for his country's good, but in that very act, infringing as it does the sacredness of the kingly office, foredooming himself and his country alike to ills yet greater than those from which he had saved her. Richard III., again, illustrates the same idea dominant in Shake-

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speare's mind. In him all sense of the sacredness of royalty has gone to the winds. He carves his way to the throne, and keeps himself there by the same methods. He is the King-Hangman *par excellence.* Such is Shakespeare's view of him, and I can but think that even without More's "Life" to guide him, or his Tudor sympathies to prejudice him, Richard must still have appeared to him a villain, if only for the colossal blows he rained upon the sacred fabric of royalty.

But, as I put it to you, the foundations of royalty, in Shakespeare's philosophy, were two-fold—birth and worth, descent and merit. Shakespeare's strongly emphasised insistence upon the hereditary sacredness of the office I have touched on. What has he to say in regard to worth and merit?

Let us glance shortly at this gallery of kings, and we shall find that he required that same robustness of character in the individual ruler which he recognised as an essential in the nation as a whole. The character of John in Shakespeare's play is, I am inclined to hold, far nearer to the actual John than is sometimes allowed. We British, the most conservative people in the Western world, have a peculiar habit of judging our past rulers, oddly enough, according as they did or did not adopt the most advanced constitutional position of their time and period. John is accordingly labelled a bad king, and that unfortunate and embracing adjective conveys an impression which distinctly does him injustice. His position was not unlike that of Henry VIII. and the Tudors. He had to meet the combined hostility of the Papacy and the greatest Continental Power of his age at a critical period of domestic history. He provoked that hostility on grounds which were distinctly national and praiseworthy. He failed because he had not what both William I. and Henry VIII. in a similar crisis possessed—a united nation behind him. Shakespeare quite inaccurately, but wholly in keeping with his general design, attributes this to John's defective title to the crown. But there is a further significance attaching to his character as Shakespeare unfolds it. He is clever in a pettifogging manner, but he is not a man of action. He can see the weak points in his enemy's position, but he cannot make the fullest use of it. He is a king of king-craft, but inert, unkingly in action.

Richard II. is another example of the unkingly king. He is distinctively the type of the Poet-Philosopher king, a Hamlet among his peers, but wanting even that halting purpose which gave direc-

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tion to Hamlet's rudderless course. Kingly he is, however, in spite of a somewhat petulant effeminacy, lovable in spite of his wayward stupidity; but absolutely unpractical, living in a world of imagery, subsisting, as one may say, on his own emotions, and presenting none of that virility, that forcefulness of character and purpose which Shakespeare looked for in his ideal.

In strong contrast to Richard stands his rival Bolingbroke. Prosaic, self-reliant, an ordinary John Bull, without enthusiasm, and without the power of arousing it, a "great king," as Richard says, "a good king, but king not greatly good," his very patriotism is tinged by self-interest. Yet his is a forceful character, but wanting in that personal attractiveness which dignified his rival, as in the buoyant humanity which graced his son. For the rest, Henry VI. is a saintly cypher, a second Confessor, a King-Priest. Richard III. is a villain pure and simple, transpontine in his thoroughness. Henry VII. and VIII. are sketches rather than portraits, but approximating rather to a Henry IV. But it is in his Henry V. that he sets forth his embodied ideal of the typical king, and therein of the national character at its best. Free from the blemish which marked his father's claim to the crown, robust, self-reliant, pious, but not priest-ridden like his son, possessing the king-craft of John, but without his inertness, the practical nature of Henry IV., but with an added power of enthusiasm which his father never possessed, of personal charm like Richard—in a word, a typical English king set in a typical English environment, victorious in war, obeyed at home, one in whom birth and worth, descent and merit equally combined. Such is Shakespeare's complete king, a typical Tudor after all, even in that rough humour which forbade them ever wholly to lose touch with their people even in times the most critical, a few grains of which in their successors—I exclude the second Charles, who was a Tudor in that and other qualities—might have caused the history of the seventeenth century to run somewhat differently in England as in Scotland.

Such appear to me two aspects from which we are justified in reading into the History Dramas a unity of design and treatment. In and through the characters he uses, as to some extent by means of the period he illustrates, he offers his solution to the problems of national purpose, and of the ultimate sanction of royal authority.

But beyond these two characteristics he stands out as the prophet of a vigorous patriotism. For that we may forgive him the strong

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political and national bias which characterises his epic. Both have led him into inaccuracies of detail. The latter has given us the inaccurate, but inspiring character of John of Ghent, the monstrous picture of Joan of Arc. The former has perhaps tinged the character of Henry V., misreads the motives of Richard of York and Warwick, distorts that of Richard III., and gives to Henry VII. a touch of chivalry which he certainly did not possess.

But essentially virile in his attitude towards the problems of life, living in an age in which man was pushing at length his outposts further and further into the realm of undiscovered facts, impregnated to the full with a sturdy belief in the strength and destiny of his own nation, and viewing the beginnings of that colonial and maritime expansion, which in its result was to fulfil Cranmer's bold prediction and enlarge the swan's nest in the pool into a Greater Britain of boundless possibilities, Shakespeare in no halting tones proclaims the high destiny which his patriotic confidence assured him lay in the future. The hero of his cycle, as has been well remarked, is no king in particular, but England herself. Stirring must have been his inspiring patriotism in the bustling days of Elizabeth. He reflects all the vigour and directness of purpose of his own age, reads England's past in the same spirit and passes it on, a lesson, an encouragement for all time.

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*October* 27, 1899.—Dr. JOSEPH OGILVIE, *the President, in the Chair.*

Professor M'KENDRICK, of Glasgow University, communicated a paper entitled, "On the Physical Constitution of Vowels and Words."

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## *On the Physical Constitution of Vowels and Words.*

By JOHN G. M'KENDRICK, Professor of Physiology in the University of Glasgow.*

Three years ago I had the privilege of reading a paper before this Society on the phonograph, and of showing photographs of impressions made on the wax cylinder of that instrument. It was evident that a careful study of these impressions might throw light on certain problems in acoustics, more especially as regards quality of tone. Since then I have now and again been engaged in various attempts to obtain, on an enlarged scale, the curves corresponding to the marks, and it is some of the results of these attempts that I have the honour of bringing before you this evening. It is evident that, as the phonograph reproduces with remarkable accuracy the tones impressed upon its wax cylinder, the form of the curves corresponding to the marks must physically correspond to the individual vibrations. Thus, the mark corresponding to the air pressure produced by a single throb or vibration or wave of the sound of a large orchestra must differ from that corresponding to the more simple tone of a flute. Fascinating, however, as the study of curves corresponding to tones produced by a single musical instrument, or of instruments combined in an orchestra, may be, I shall not consider these in this communication, but I shall discuss vowel-tones and the constitution of words.

The quality of the human voice depends on the same laws as those determining the quality, *klangtint*, or timbre of the tones produced by any musical instrument. Tones of a mixed character—that is to say, composed of a fundamental and harmonic partial tones—are produced by the vibrations of the true vocal cords, and

* This communication was given in the form of a lecture. Numerous illustrations not shown in the text were projected on the screen, the apparatus mentioned in the paper was shown in action, and numerous experiments were performed. The more important portion of the communication is now given in a condensed form.



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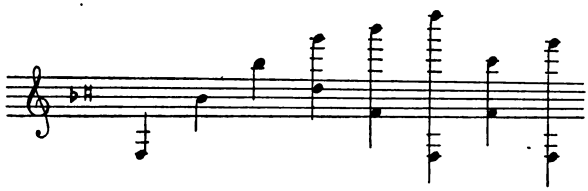
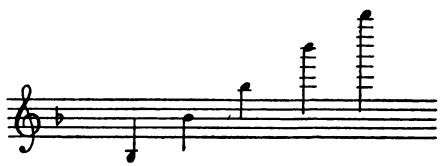
certain of these partials are strengthened by the resonance of the air in the air passages, and in the pharyngeal and oral cavities. So strongly may certain of these partials be reinforced, as to obscure or hide the fundamental tone, and give a peculiar character to the sound. But there are still many difficulties in the way of a true interpretation of voice-tones. Thus, we observe that we may sing a scale, using one sound for each note, such as, *la, la, la,* etc.; or, by putting the mouth in certain positions, we can pronounce the vowel sounds, *a, ā, ē, o, ou* (pronounced as the *u* in *prune*). As we do so, we notice that each sound appears to the ear to have a pitch of its own, different from that of the others. Helmholtz gave the characteristic pitch of the several vowel-tones as follows :—



| Vowels . . | OU | O | A | AI | E | I | EU | U |
|---|---|---|---|---|---|---|---|---|
| Tone . . . | $fa_2$ | $si\flat_3$ | $si\flat_4$ | $sol_5$ or $re_4$ | $si\flat_5$ or $fa_3$ | $re_6$ or $fa_2$ | $do_5$ or $fa_3$ | $sol_5$ or $fa_2$ |
| No. of vibs. . | 170 | 470 | 940 | 1536 or 576 | 1920 or 341 | 2304 or 170 | 1024 or 341 | 1536 or 170 |

FIG 1.—PITCH OF VOWELS ACCORDING TO HELMHOLTZ.

König has given a different statement as to pitch :—



| Vowels . . . . . | OU | O | A | E | I |
|---|---|---|---|---|---|
| Tone . . . . . | $si\flat_2$ | $si\flat_3$ | $si\flat_4$ | $si\flat_5$ | $si\flat_6$ |
| No. of vibs. . . . . | 235 | 470 | 940 | 1880 | 3760 |

FIG. 2.—PITCH OF VOWELS ACCORDING TO KONIG.

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Donders, who was the first to observe that the cavity of the mouth for different vowels is tuned to different pitches, gave *U* as $f_1$, *O* as $d_1$, *A* as $b'\flat$, *Ö* (like *oo* in *too*) as $g^2$, *Ü* (like *aw* in *gnaw*) as $a''$, *E* as $c'''\sharp$, and *I* as $f'''$.

Again, we may sing a vowel on a scale and still recognise the vowel in each note. Thus, if we sing *a*, or *o*, or *i*, on a scale beginning with *c*, the ear catches the sound of *a*, or *o*, or *i*, in each note. Such tones are termed vowels, or we might call them vowel-tones. Why does a vowel-tone always appear to have the same quality, whatever may be the pitch of the note on which it is sung?

The investigation of vowel-tones may be considered to date from the experiments of Willis about 1829, who imitated the larynx by means of a reed, above which he placed a resonating cavity. About 1837, Wheatstone made some observations on the subject, and, in later times, the matter has been studied by Donders, Helmholtz, König, Hermann, and many others. The invention of the tinfoil phonograph by Edison in 1877, and the improvement of the instrument by the labours of Edison, Graham Bell, and others, in more recent years,—until we now possess, in the wax-cylinder phonograph, an almost perfect mechanism,—have led to the re-investigation of the whole question of vowel-tone by the late Fleeming Jenkin, Ewing, Hermann, Pipping, Boeke, Lloyd, and myself. The difficulties in the way of accounting for some of the phenomena of vowel-tones will be appreciated when I state that competent observers, such as those above named, and many others, are ranged in two camps, those who uphold the theory of relative as opposed to those who contend for the theory of fixed pitch of vowels. Assuming that a vowel is always a componnd tone, composed of a fundamental and harmonic partials, those who uphold the relative pitch theory state that if the pitch of the fundamental tone is changed, the pitch of the harmonics must undergo a relative change; while their opponents contend that whatever may be the pitch of the tone produced by the larynx, the pitch of the partial that gives quality or character to a vowel is always the same, or, in other words, vowel-tones have a fixed pitch.

There are many methods of investigating this problem, but these may be grouped in two divisions—first, experimental methods by which the pitch of the oral cavity, in the position suitable for the production of any given vowel, may be determined; and, second, mathematical methods by which the curve or wave-form, represent-

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ing a certain quality of vowel-tone, may be analysed into its constituents, in accordance with Fourier's theorem.

One of the early experiments of Willis favoured the fixed-pitch theory. A piece of watch spring was held by forceps against a revolving toothed wheel. A compound tone was produced, which of course retained the same pitch, so long as the wheel revolved uniformly. Now, by keeping the wheel revolving at a uniform rate, and at the same time changing the length of the portion of the spring which was allowed to vibrate, Willis found that the qualities of various vowels were obtained with considerable distinctness.

Willis also used reed pipes attached to cylindrical chambers of variable length, and altered the quality of tone by increasing or diminishing the length of the resonant chamber. The shortest tubes gave *I*, then *E*, *A*, *O*, to *U*. In this way he determined the pitch of the vowel as it sounds in words.

As already stated, Donders was the first to show that the cavity of the mouth, as arranged for the giving forth of a vowel, was tuned as a resonator for a tone of a certain pitch, and that different pitches corresponded to the forms of the cavity for the different vowels. This he discovered, not by the use of tuning-forks, but by the peculiar noise produced in the mouth when the different vowels are whispered. The cavity of the mouth is then blown like an organ-pipe, and by its resonance reinforces the corresponding partials in the rushing wind-like noise. The question was then taken up by Helmholtz, and treated in his usual masterly fashion. To determine the pitch of the cavity of the mouth, considered as a resonance cavity, he struck tuning-forks of different pitches, and held them before the opening of the mouth, say widely opened. Then, the louder the proper tone of the fork was heard the nearer "it corresponded with one of the proper tones of the included mass of air." As the shape of the mouth could be altered at pleasure, according to the vowel to be emitted, it was easy to discover the pitch of the included mass of air for each vowel. He came to the conclusion that "the pitch of the strongest resonance of the oral cavity depends solely upon the vowel for pronouncing which the mouth has been arranged." He also found the same resonances for men as for women and children. He then carefully examined the form of the oral cavity for each vowel, and showed how very slight changes would account for the quality being slightly altered for different dialects.

His theory as to vowel-tone is summed up in the following

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sentence—"Vowel qualities of tone consequently are essentially distinguished from the tones of most other musical instruments, by the fact that the loudness of their partial tones *does not depend upon the numerical order, but upon the absolute pitch of those partials;* thus, when I sing the vowel *A* to the note *E*♭, the reinforced tone *b*″♭ is the twelfth partial tone of the compound; and when I sing the same vowel *A* to the note *b*′♭, the reinforced tone is still *b*″♭, but is now the second partial of the compound tone sung."

Further, Helmholtz endeavoured to demonstrate the correctness of his view by synthetically combining the tones of certain tuning-forks in his well-known vowel-tone apparatus. He, in early experiments, used eight forks, the first being the fundamental tone $si_1$♭, and the others the first seven partials. Thus—

$$si_1\flat,\ si_2\flat,\ fa_3,\ si_3\flat,\ re_4,\ fa_4,\ la_4\flat,\ si_4\flat$$

The vowel *O* is well sounded with this apparatus, when we sound $si_3$♭ (characteristic of *O*) strongly; more feebly $si_2$♭, $fa_3$, $re_3$, and the fundamental softly. *OU* is good with $si_1$♭ strong, and the partials feeble. Using in another apparatus

$$si_2\flat,\ si_3\flat,\ fa_4,\ si_4\flat,\ re_5,\ fa_5,\ la_5\flat,\ si_5\flat$$

*OU* was given with $si_2$♭ (the fundamental) alone. *O* was sounded by fundamental $si_2$♭ moderate, $si_3$♭ strong, and $fa_4$ weak. If we sound $si_2$♭ (fundamental) along with $si_3$♭ and *fa* moderate, and $si_4$♭ and $re_5$ strongly we obtain *A*. This vowel is characterised by $si_4$♭, along with the partials $si_3$♭ and $si_2$♭. To obtain *E*, give $si_2$♭ and $si_3$♭ moderate, and $fa_3$, $la_3$♭, and $si_3$♭ as strong as possible. The characteristic partial of this vowel is $si_3$♭. We have performed many experiments with this apparatus, and find the results obtained by Helmholtz to be consistent with our experience. Much depends in the appreciation of this experiment on careful attention, practice and a good ear.

König investigated the subject with the aid of his manometric flame apparatus. This method is useful, because it shows the different forms of the sound-wave, without change of period, corresponding to a tone of determinate pitch when the vowels are sung upon that tone. The apparatus is shown in Fig. 3.

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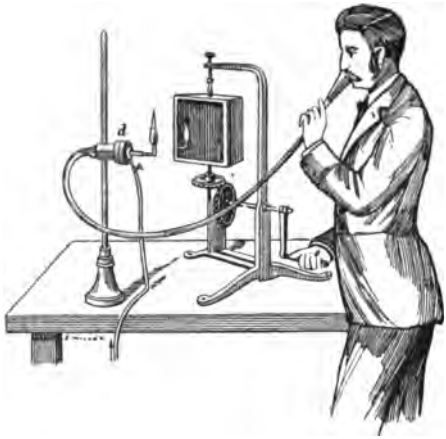


FIG. 3.—KONIG'S APPARATUS FOR ILLUSTRATING THE QUALITY OF VOWEL-TONES BY A MANOMETRIC FLAME.

The next figure shows the forms taken by the flame when the three notes $ut_1$, $sol_1$, and $ut_2$ are sung with the vowels *A*, *O*, and *OU*.

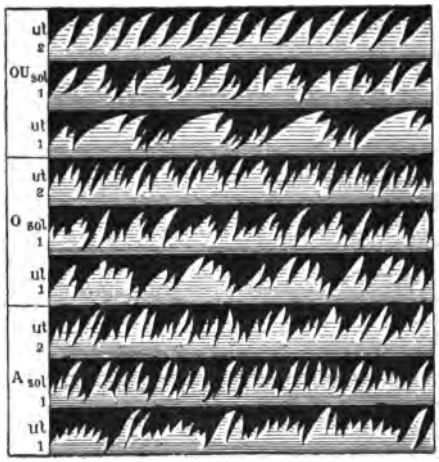


FIG. 4.—FLAME PICTURES OF THE VOWELS *OU*, *O*, AND *A* (König).

Each of these pictures is composed of two groups of teeth, reproduced again and again, and thus showing a regular periodic vibratory movement. The three pictures of $ut_1$ contain eight groups of teeth, while those of $sol_1$ contain twelve, and those of $ut_2$ sixteen. As the length of all these pictures corresponds to the same duration

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of a vibratory state, it is evident that the period of the vibratory movement, or the length of the wave characteristic of a tone of determinate pitch, is independent of the vowel upon which the sound is emitted. But the form of the wave characteristic of the tone of given pitch varies much with the vowel upon which it is sung. This alteration of the form of the wave, while the period is constant, must be due to the superposition of a tone developed in the mouth, characteristic of the vowel, upon the tone emitted by the larynx.

According to König, *OU* is always easily emitted with $si_2\flat$, and the neighbouring tones $la_2$, $sol_2$ with the lower partials $si_1\flat$, $mi_1\flat$. *O* is emitted with $si_3\flat$, the partials $la_3$ $sol_3$, and the lower partials $si_2\flat$, $mi_2\flat$, $si_1\flat$. *A* comes with $si_4\flat$, with $la_4$, with $sol_4$, along with the lower partials $si_3\flat$, $mi_3\flat$, $si_2\flat$. *E* and *I* are not easily sounded on low tones, as their characteristic partials are very high. On tones lower than $ut_3$, the female voice turns involuntarily to *O* or *OU* which have $si_3\flat$ and $si_2\flat$ as their characteristic partials. Above $fa_4$ it is *A*, characterised by $si_4\flat$, which is most readily given. Above $si_4$ the voice passes into *E* and *I*. These observations of König are harmonious with the conclusions of Helmholtz, and favour the fixed pitch theory.

Hallock has recently employed a device founded on that of König. Eight resonators in harmonic series were each connected with a manometric capsule, and photographs were taken of the eight bands of flame pictures, reflected in a mirror, when the vowels were sung before the resonators. From these photographs the partials present in any vowel-tone, within the range of the resonators, could be determined. Of course the higher partials, on which, as pointed out by Helmholtz, much depends, were not detected.

WAVE-FORMS OF VOWEL-TONES.—We must now turn to the evidence adduced by an analysis of the wave-forms of vowel-tones. To appreciate this evidence, the following statements must be kept in view:—

1. Pitch depends on the length of time in which each single vibration is executed, or, in other words, on the vibrational number of the tone.

2. Musical tones are higher, the greater their vibrational number; that is to say, the shorter the vibrational period.

3. The sensation excited by a periodic vibration is a musical tone. This tone is usually compound, the constituents being partial tones.

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4. Only one form of vibration, like that of a pendulum or the limbs of a tuning-fork, can give rise to a simple tone, destitute of partials. This is a simple pendular vibration, and the sensation is a simple tone.

5. A compound tone is the sensation produced by the simultaneous action of several simple tones, with definite ratio of pitch. Such a compound tone corresponds physically to a wave of more or less complex form.

6. Such a compound wave is capable of being analysed into a number of simple pendular vibrations, and each pendular vibration corresponds to a simple tone, having a pitch determined by the periodic time of the corresponding motion of the air (Ohm's law).

7. It is evident that such combinations of simple waves may give rise to an infinite variety of wave-forms, but, according to Fourier's theorem, "any given regular periodic form of vibration can always be produced by the addition of simple vibrations, having vibrational numbers, which are once, twice, thrice, four times, etc., as great as the vibrational number of the given motion."

8. If we know the *amplitudes* of the simple vibrations and the *difference of phase*, then any regularly periodic motion can be shown to be the sum of a certain number of pendular vibrations; in other words, the compound wave may be analysed into its constituents.

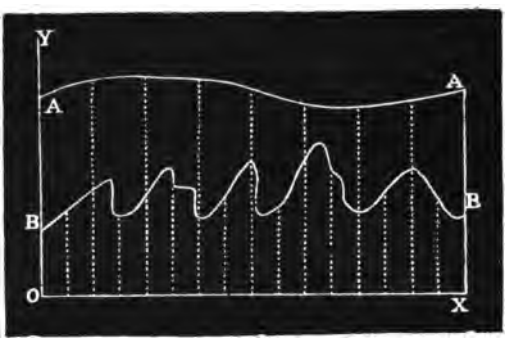


FIG. 5.—DIAGRAM SHOWING THE FIRST STEP IN ANALYSING WAVE-FORMS.

THE FOURIERIAN ANALYSIS OF WAVE-FORMS.—The method of applying the Fourierian analysis may be shortly stated. Suppose a single wave (*AA* or *BB*) is taken and referred to rectangular axes (*OX*, *OY*), abscissæ of equal length are measured off along *OX*,

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ordinates are drawn to meet the curves, and these are very accurately measured. For a simple curve, such as *AA*, few ordinates suffice; but if the curve is complex in form, the number of measurements must be increased until no considerable curvature exists between the summits of any two successive co-ordinates. When a sufficient number of ordinates has been taken, an analysis carried to one-half that number of partials, or even somewhat less, suffices to define the curve. The mathematical process for evaluating the amplitude and phase of a certain number of partials, say the first twelve, is given by Fleeming Jenkin and Ewing in their well-known paper. A curve may be rebuilt graphically from its analysis, but the process is laborious when the partials are numerous. If we know the pitch of the fundamental tone, then the pitch of any partial is ascertained by multiplying its vibrational number by the figure representing the ratio of its amplitude to that of the fundamental tone. For example, take the analysis of a Swedish *i* (resembling the French), sung by Pipping at a pitch of 293 vibrations distances per second.

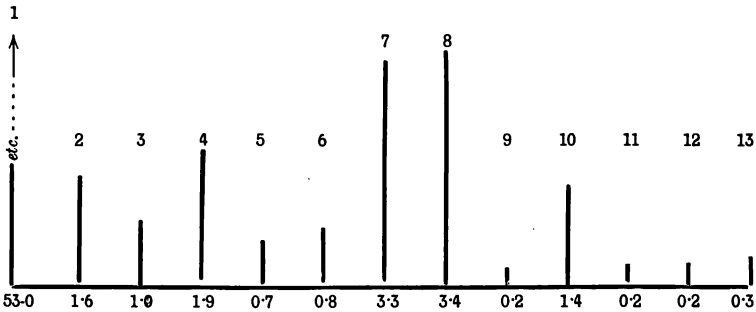


FIG. 6.—AMPLITUDE, AS INDICATED BY THE HEIGHT OF THE ORDINATE, OF THE PARTIALS OF THE SWEDISH *I*, SUNG AT PITCH OF 293 VIBS.

An inspection of this figure shows that two reinforcements are very pronounced, the one on the seventh and eighth, and the other on the fourth partial. Each of these partials has to do with the resonance cavity to which it corresponds, and in which it has been developed to a greater or less extent. In the case of the vowel *i*, one of the resonances is obtained in the narrow tube formed between the tongue and the hard palate. This resonance has a very narrow range, for the tube will not respond to any partial having a pitch much different from its own. A rounded cavity, on the other hand, such as is formed when we articulate *aa*, will have a much

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greater range of resonance. The valuation of the pitch of any resonance which only reinforces a single partial is very simple, and is expressed by the equation—

$$n = Np,$$

where $N$ is the vibrational number of the fundamental tone, $p$ the number of the partial, and $n$ is the vibrational number of the resonance, or, in other words, its pitch. In the above figure, for example, the isolated reinforcement of the tenth partial in the vowel sung at 293 v. d. shows the existence of a resonance of $293 \times 10 =$ 2930 vibs. Where two partials are equally reinforced by one cavity, the case is not so simple. Approximately it is expressed by the equation—

$$n = N\frac{p+p}{2}$$

Thus the resonance which reinforces the seventh and eighth partials is about $293 \times \frac{15}{2} = 2198$ v. d. Even here there are minor considerations involved, which can only be seen clearly after examining one or two more general and more complex cases.

PHONOGRAMS.—We are now in a position to examine the methods that have been adopted to obtain graphic tracings of the wave-forms (phonograms) corresponding to vowel-tones, so as to submit these to the Fourierian analysis.

Donders, in 1870, was the first to apply the phonautograph of Leon Scott (invented in 1856) to the investigation of the curves produced by the sounds of vowels. In 1878, Fleeming Jenkin and Ewing succeeded in obtaining tracings of the records of vowel-sounds on the tinfoil phonograph, and the curves were submitted to harmonic analysis. This was the beginning of the present discussion. These two observers obtained good curves, even with the imperfect instrument, and the curves were submitted to analysis, so as to determine the amplitude of their constituents up to the sixth partial, and the process of measurement and calculation was applied to more than one hundred curves. The sixth partial was not a high limit to reach, but the phonograph, at that date, did not record the higher partials. For example, it could not reproduce the sound of *I* in machine, nor the French or German *U*. Twelve values for $y$ (the lengths of the co-ordinates for one period chosen) gave the data for

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calculating the amplitude and phases of the first six partials. Professor Tait supplied the authors with the solutions of the simultaneous equations for twelve values of $y$, and the results are given in a series of tables, in which the predominance of certain partials is unmistakable In this way, each vowel was examined. The conclusions arrived at were, on the whole, favourable to the constant-pitch theory, and were thus summed up: "It is clear that the quality of a vowel-sound does not depend either on the absolute pitch of reinforcement of the constituent tones alone, or on the simple grouping of relative partials independently of pitch. Before the constituents of a vowel can be assigned, the pitch of the prime must be given; and, on the other hand, the pitch of the most strongly reinforced partial is not alone sufficient to allow us to name the vowel. To do this, we must also know the relation of the constituent particles to one another." Again, "The ear is guided by two factors, one depending on the harmony or group of relative partials, and the other on the absolute pitch of the reinforced constituents." The ear recognises, as it were, when it hears a vowel sung, *at any pitch*, the kind of oral cavity causing the reinforcement. As to the question, "Is the resonance cavity for a vowel-sound constant at all pitches?" the authors are cautious; and their opinion appears to be that whilst the resonance cavity for a vowel-sound has an absolute pitch, it may have a certain effect in reinforcing other subordinate tones or partials. While experimentally it may be shown that a *constant* cavity may produce a vowel-like tone, say *O*, over a wide range of pitch, it is probable that the resonant cavities of the human being are slightly adjustable, so as to be, as it were, tuned to the pitch on which the vowel is sung. In other words, Fleeming Jenkin and Ewing hold that both the relative and the absolute factors enter into the composition of a vowel, a conclusion not far from the truth.

The subject was taken up by Hermann, about 1890, and he used the much improved wax-cylinder phonograph. He succeeded in obtaining photographs of the curves on the wax cylinder, a beam of light reflected from a small mirror attached to the vibrating disc of the phonograph being allowed to fall on a sensitive plate while the phonograph was slowly travelling. The curves thus obtained, representing the wave-forms of the vowel-tones (Fig. 7), were submitted to analysis, with the view of estimating the pitch of the mean partial, or the *formant*, as it is called by Hermann, according

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to the method already described. Hermann also pointed out that the quality of a vowel-tone varies considerably, according to the rate at which the cylinder was rotated. This should obviously be not the case, were the relative-pitch theory correct. It is curious that even with competent observers there should be such difficulty in deciding this apparently simple question of fact, some asserting that there is no difference in quality, and others as positively stating that there is a difference, when the cylinder is caused to move slowly. After many experiments, I have come to the conclusion that there is a difference, but not so great as to disguise the quality of the vowel. To produce any appreciable change in quality, the cylinder must be driven at an enormous speed. The ear can always distinguish *O* or *A* or *E* at different rates, but the quality is undoubtedly altered. The sound of a vowel never passes into the sound of another vowel.

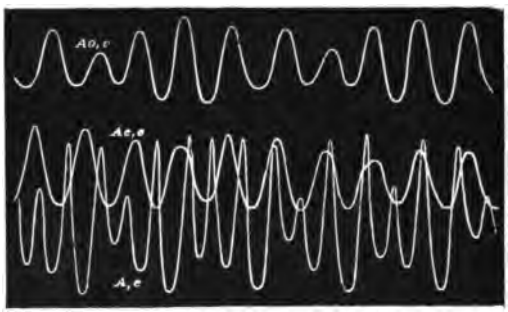


FIG. 7.—EXAMPLES OF VOWEL CURVES OBTAINED BY HERMANN.

Hermann presents the fixed-pitch theory in a modified form, and states that there is for each vowel a characteristic tone, a *formant*. Not only does Hermann support the fixed-pitch theory, but he maintains that the *formant* need not necessarily be a partial of the fundamental. Sometimes it is such a note, but more often not. The pitch of the *formant*, however, may vary considerably; indeed, with the same prime, it may vary as much in certain cases as several semitones. Fig. 8 shows in musical notation the pitch of the vowel, according to Hermann.

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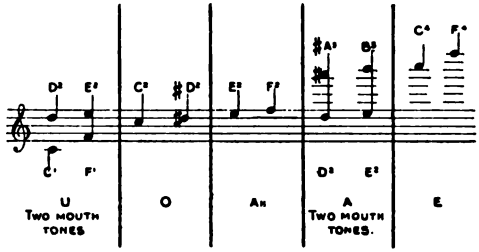


FIG. 8.—PITCH OF THE VOWELS ACCORDING TO HERMANN.

Boeke of Alkmaar has not only devised an ingenious and most accurate method of obtaining curves from the wax cylinder of the phonograph, but he has applied the Fourierian analysis with striking results in general support of the fixed-pitch theory. The method consists in measuring microscopically the transverse diameter of the impressions on the surface of the phonograph cylinder, on different (generally equidistant) parts of the period, and in inferring from these measurements the depth of the impressions on the same spot, or, in other words, deriving from them the curve of the tone which produced the impression.

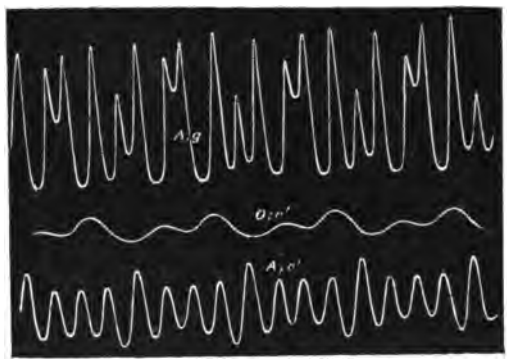

FIG. 9.—EXAMPLES OF VOWEL CURVES OBTAINED BY HERMANN.

DISCUSSION OF EXAMPLES OF PHONOGRAMS.—Examples of curves obtained by Hermann are shown in Figs. 7 and 9. These show curves of the vowel *A*, sung on the notes *e*, *g*, *c′*; of the vowel *O*, sung on the note *c′*; and of the vowels *Ae* and *Ao*, sung on the notes *c* and *e*.

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Curves of vowel-tones may also be obtained on a large scale by M'Kendrick's phonograph recorder. In Fig. 25 we see curves obtained from the tracings on the wave cylinder representing the tones of various instruments.

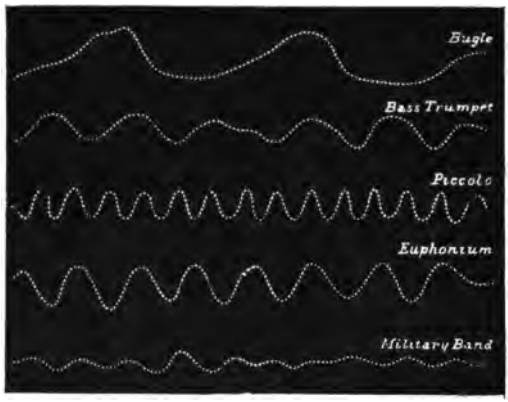


FIG. 10.—EXAMPLES OF TRACINGS OBTAINED BY M'KENDRICK'S PHONOGRAPH RECORDER.

The dots represent drops of ink from a small syphon. One inch shows the vibrations occurring in the ·1480 sec.

The following analyses supplied by Boeke are very instructive. The first is the analysis of the tones of a cornet. Observe how the intensity of the partials gradually diminishes :—

| Note | Vibs. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Partials. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *f* = | 170 | 1 | 1·05 | 1·22 | 1·15 | 1·01 | 0·80 | 0·53 | 0·28 | 0·13 | 0·10 | ,, |
| *c'* = | 256 | 1 | 0·92 | 0·81 | 0·53 | 0·39 | 0·20 | 0·07 | 0·04 | 0·06 | 0·04 | ,, |
| *g'* = | 384 | 1 | 0·76 | 0·46 | 0·14 | 0·09 | 0·06 | 0·07 | 0·02 | 0·01 | 0·01 | ,, |
| *c''* = | 512 | 1 | 0·92? | 0·30 | 0·14 | 0·15 | 0·09 | 0·07 | 0·06 | 0·03 | 0·02 | ,, |

Contrast this analysis with that of the vowel *āā* sung by Boeke (æt. 50) on the notes (*f* and *c'*) and the same vowel sung on the notes (*g'* and *e''*), sung by his son, æt. 12, both like the vowel in the word "heart," it will be seen from the analytical numbers that the *formant* of the son's vowel (*āā*) was almost the same as that of the father, although the pitch of his voice was exactly an octave higher.

*Man, æt. 50, singing āā.*

| Pitch | Vibs. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Partials. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *f* | 170·6 | 1 | 0·86 | 0·46 | *1·74* | *1·90* | 1·55 | 0·51 | 0·54 | 0·43 | 0·44 | ,, |
| *c'* | 256 | 1 | 0·49 | *1·96* | *1·25* | 0·60 | 0·56 | 0·23 | 0·05 | 0·06 | 0·10 | ,, |

*Boy, æt. 12, singing āā.*

| Pitch | Vibs. | 1 | 2 | 3 | 4 | 5 | 6 | Partials. |
|---|---|---|---|---|---|---|---|---|
| *g'* | 384 | 1 | *1·22* | *2·67* | 0·45 | 0·17 | 0·06 | ,, |
| *e''* | 640 | 1 | *8·09* | 1·45 | 0·53 | | | ,, |

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Dr. Lloyd has examined these figures and supplied me with the following table: —

| Man's *āā*. | Partials Re-inforced. | Evaluated by Hermann's Method. | | Evaluated by Pipping's Method (= Lloyd's Formula). | |
|---|---|---|---|---|---|
| | | Mean Partial. | V. D.* | Mean Partial. | V. D. |
| *f* 170·6 v. d. | 4–6 | 4·96 | 846 | 4·90 | 836 |
| *c′* 256 ,, | 3–4 | 3·39 | 868 | 3·35 | 859 |
| Boy's *āā*. | | | | | |
| *g′* 384 v. d. | 2–4 | 2·82 | 1084 | 2·75 | 1057 |
| *c″* 640 ,, | 1–3 | 2·04 | 1307 | 1·98 | 1267 |

* V. D. = a double vib., or, as expressed in England, a *complete* vib.

A study of these figures will show (1) that the man's resonance rises slightly (half semitone) in ascending 7 semitones in the middle of his register; (2) that the boy's resonance rises 3 semitones in ascending 9 semitones in the upper half of his register; and in the mid-register the boy's resonance is to the man's as 5 : 4. This indicates that as we ascend a scale in singing a vowel, the pitch of the oral cavity slightly changes.

Lloyd holds a view differing from those already described. Vowels, according to him, owe their character, not to the resonance of a partial or partials of a certain fixed pitch, but to the relative pitch of two or more partials. This view accounts for a fact which is not explained by the other theories, namely, that the articulation of a vowel seems to be the same for a child as for an adult. Thus, in the vowel *A* as in "fat," sung on a note having a pitch of 134 v. d., Lloyd finds two partials, the lower of which he terms the pharyngeal or $\alpha$-resonance, and the other the oral or $\beta$-resonance. Of these the lower, for *A* in "fat," has a vibrational number of 736, while the upper has 1121. The ratio of these two partials is therefore $\frac{1121}{736} = 1{\cdot}47$. This is termed by Lloyd the radical ratio, and it determines the nature of the vowel. Again, the radical ratio of the Swedish long *A* is 1·35.

The following curves were sent to the writers by Dr. Boeke. They are the curves, taken by Boeke's method, of the vowel *A* (as in "fat"), sung by M'Kendrick, Pipping, Boeke, and Hermann on a pitch of $ut_2 = 128$ v. d., and $ut_3 = 256$ v. d., and are instructive as showing the same vowel sung on the same pitch by men of different nationalities. The results of harmonic analysis giving, in plotted

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lines, the amplitude of the partials, are shown graphically in Fig. 12. The numerals at the beginning of each line in Figs. 11 and 12 correspond. In Fig. 12 the dots represent partials, and the height of the dot above the mean represents the amplitude of the corresponding partial. There is a likeness between the *Ac* of M'Kendrick and Pipping, and also between M'Kendrick's *Ac'* and Boeke's *Ac'*, both in form and analysis.

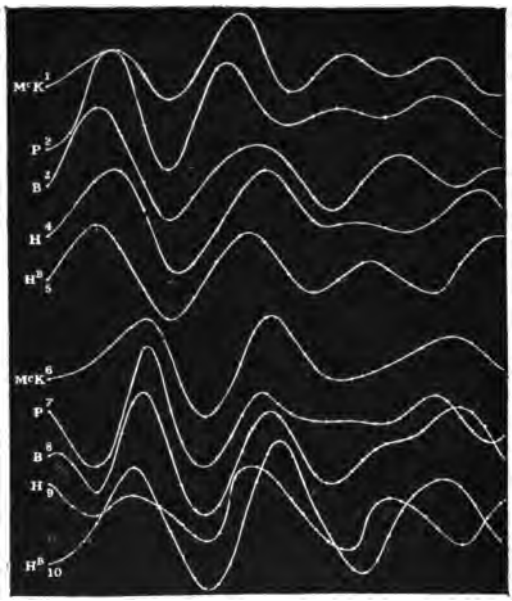


FIG. 11.—CURVES BY BOEKE.

FIG. 12.—HARMONIC ANALYSES OF THE CURVES IN FIG. 11.

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Lloyd, in support of his view of a cleavage in the reinforcements, which is the sign of two separate resonances, has reported upon two examples of *O* sung by Hermann, both at 132 v. d. The amplitudes were as follows :—

| V. D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 132 | 6·7 | 10·7 | 18·4 | 14·6 | 18·1 | 4·7 | 2·5 | 1·3 | 1·0 | 0·5 |
| 132 | 7·8 | 23·4 | 11·2 | 7·0 | 17·0 | 3·6 | 2·1 | 1·2 | 0·6 | 1·0 |

To these he adds two other examples of the same vowel, one sung at 148 v. d. by M'Kendrick, and the other at 128 v. d. by Boeke:—

| V. D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 148 | 1 | 1·12 | 1·73 | 0·19 | 1·90 | 0·97 | 0·35 | ... |
| 128 | 1 | 2·32 | 5·81 | 2·10 | 5·48 | 0·32 | 0·55 | 0·76 |

The fourth partial in each of these four analyses shows a palpable falling off in strength, as compared with its neighbours on either side, and this falling off marks in each case the gap between an $\alpha$-resonance of 300 to 400 v. d. and a $\beta$-resonance of 600 to 800 v. d. The vowel *O*, however low it may be sung, can hardly have more than two partials, intermediate to the two culminations. In three out of the four cases above given it has only one intermediate partial. This common partial must be subject to a strong influence from both resonances at one time. All the other partials are situated so much nearer to the one resonance than to the other, that they may be regarded as being under the sole influence of the former.

The common partial, on the other hand, receives a stimulus from each; and it must be remembered that these stimuli are mutually independent, as the one operates in the oral and the other in the pharyngeal cavity, and that it is a matter of chance whether, in any phonogram analysed, these two stimulations operate to exaggerate or to conceal each other in the tabulated numerical strength of the partial. Thus it comes to be a question of *phase*.

Lloyd has evaluated the $\alpha$- and $\beta$-resonances of the vowel (*O*) as above given, and stated the result in the following table :—

| Sung by | V. D. | Partials Reinforced. | | Mean Resonance. | | Radical Ratio. |
|---|---|---|---|---|---|---|
| | | $\alpha$ | $\beta$ | $\alpha$ | $\beta$ | |
| Hermann . . . | 132 | 2–4 | 4–7 | 421 | 653 | 1·553 |
| Hermann . . . | 132 | 1–3 | 4–7 | 290 | 672 | 2·318 |
| M'Kendrick . . | 148 | 1–4 | 4–7 | 365 | 812 | 2·221 |
| Boeke . . . | 128 | 2–4 | 4–6 | 391 | 615 | 1·573 |



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These four available instances give an average of 368 v. d. for $\alpha$-resonance, of 688 v. d. for $\beta$-resonance, and of 1·916 for the radical ratio. A sounder method would be to take from one voice a sufficient number of *O* analyses to constitute an average, thus eliminating the chances which cause the common partial to vary to such a noticeable degree.

In some vowel-tones, the intensity of the fundamental or prime tone is weaker than one of the upper partials. Helmholtz lays special emphasis on this observation, and he put the statement conversely, namely, that vowel-tones differ from those of ordinary musical instruments in that one of the upper partials is more marked than the prime. Hermann also supports this view, and, in a communication to the writers, Boeke expressly states that his analyses bring out the same fact. On the other hand, Auerbach maintains that the prime tone is always the strongest. Lord Rayleigh is also of this opinion, while he admits that in the vowel *A*, the fundamental is not heard so loudly as in other vowels. Hermann suggests that when the prime tone is heard of very weak intensity it may exist only in the ear, but Lord Rayleigh shows that even then it does exist in the external air.

General Conclusion.—It would appear, on the whole, that the truth does not rest entirely on the side of one theory, but that both are partially true. The view of Donders, that each vowel has a mouth cavity of unchangeable and fixed pitch is too exclusive, and on the other hand, it cannot be denied (as is virtually done by those who uphold the relative-pitch theory) that each vowel has a predominant partial or predominant partials which give it a definite character, and which must be produced by the mouth cavity as a whole, or by the double resonance of portions of the cavity, as contended by Lloyd. When a vowel is spoken, either separately or as it exists in a word, the complex tone is produced by the vocal cords. The resonance chambers above assume a certain form, and one or more partials peculiar to the vowel are so strengthened as to give such character to the vowel-tone as to enable the ear at once to identify it. As the form of the mouth cavity varies in individuals, and in different races, the partials may not be identical in each case, but they will be so near a common pitch as to enable the ear at once to identify the vowel. If, however, men of different nationalities attempt to fix the absolute pitch of the partial, they will not agree, as has been found to be the case. Again, in singing a vowel, in a

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scale, very slight alterations in the form of the resonance cavities take place. In rising from the lower to the higher notes, the larynx rises, and more or less of a muscular strain acts on the walls of the resonance cavities. Thus, there must be a slight change in the volume of these cavities, leading to the development of partials different from those formed by the cavity at rest, or in speech, but still so sufficiently near as not materially to alter the quality of the tone. Consequently, the ear still recognises the tone of the vowel, even when sung at a high pitch, and it may even recognise the special quality of a particular voice. Sometimes, though rarely, the quality may become richer as the voice rises in pitch; usually for each voice there is a register in which the voice has its maximum of good quality. It is not surprising, therefore, that a singer almost instinctively chooses such vowels as best suit the resonating arrangements of his or her voice, and avoids tones, vowels, and words containing vowels, that would force the production of notes of inferior quality. On the whole, we are of opinion that Lloyd's theory of double resonance accounts best for the true nature of vowel-tones.

Let us now turn our attention to the phonographic study of words. If we examine the surface of the wax cylinder of the phonograph, on which a record of speech sounds has been impressed, we see hieroglyphics that might appear to be insoluble even to Thomas Young or Champollion. Even if we know the words spoken, it is often difficult to discover the vowel periods, and still more so to find out each individual vowel If, however, we take care or speak or sing the syllables of a word with great distinctness, and if we separate the syllables from each other, and, at the same time, record on the cylinder, alongside of the vocal sounds, the sounds of a good tuning-fork of known pitch, and then scrutinize the tracings both by ear and by eye, one may be able to identify the vowel, although they were spoken or sung in different keys and with different intensities. Practice will enable one even to identify the vowels. The vowels *A* and *E* are specially easy of identification.

One soon learns that the inscriptions of vowel-tones show the first periods very weak and indistinct, while from ten to twelve periods appear before we see the characteristic form of the vowel. The deep partials of the vowel appear first, and only a few of these are sufficient to reproduce the vowel. This was shown by Boeke in

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1890. It is remarkable that the vowel sound can be identified, when only two or three periods of a given pitch fall upon the ear. In these circumstances the sound of the vowel is not quite distinct, and it is only after the upper partials have been added that there is no danger of mistake as to the sound of a particular vowel. By the cutting or planing mechanism of the phonograph, one can plane away a portion of the impression of a vowel. It will then be found that, after all the small impressions have been cut away, so that only the sand-glass-like figure remains, still the sound of the vowel, as produced by these faint impressions, may be quite recognisable.

The diagram by Boeke shown on the screen is very instructive The pitch of his voice ranges from 180 to 230 vibs. per second, and, if we take the speed of the phonograph cylinder at about 2 revolutions per second, this will give, in slow speech, from 90 to 115 vowel periods for each revolution. With short words, in which a vowel occurs, like *pack*, *sack*, there may be as few as 17 to 20 vibrations for the vowel. In the pronunciation of words at an ordinary speed, from 35 to 50 waves represent the vowel.

It must be remembered, however, that the quality of the voice varies much in different persons, even for the same vowel, so that the forms in Boeke's diagram would not be identical with the phonograms of other people, although there would be a general resemblance.

If we sing as distinctly as possible vowel-tones through a scale, then we find that the periods are in the ratios required by the well-known laws of acoustics. Thus, sing a vowel on *c* and *e*, *E*, *G*, and *c″*, as shown by the marks on the cylinder, will be as 4 : 5 : 6 : 8, or $1 : \frac{5}{4} : \frac{3}{2} : 2$. Thus, compare *C* and *E*, and it will be found that there are 4 marks for *C* corresponding to 5 marks for *E*.

LENGTH OF SUNG VOWEL PERIODS (Child).

| Keynote. | Measured Length. | Calculated Length. | Theoretical Ratio. |
|---|---|---|---|
| *c′* | 27·3 | 27·2 | 1 |
| *d′* | 24·2 | 24·2 | $\frac{8}{9}$ |
| *e′* | 22·1 | 21·7 | $\frac{4}{5}$ |
| *f′* | 20·4 | 20·4 | $\frac{3}{4}$ |
| *g′* | 17·9 | 18·1 | $\frac{2}{3}$ |
| *a′* | 16·4 | 16·3 | $\frac{3}{5}$ |
| *h′* | 14·5 | 14·5 | $\frac{8}{15}$ |
| *c″* | 13·6 | 13·6 | $\frac{1}{2}$ |

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LENGTH OF VOWEL PERIODS OF FEMALE AND MALE.

| FEMALE (SOPRANO). | | | | MALE (BARITONE). | | | |
|---|---|---|---|---|---|---|---|
| Keynote. | Measured Length. | Calculated Length. | Theoretical Ratio. | Keynote. | Measured Length. | Calculated Length. | Theoretical Ratio. |
| *c'* | 32·5 | 31·5 | 1 | *c'* | 60 | 63 | 1 |
| *d'* | 28·5 | 28 | $\frac{8}{9}$ | *e* | 50 | 50·4 | $\frac{4}{5}$ |
| *f'* | 23·5 | 23·6 | $\frac{3}{4}$ | *g* | 43·5 | 42 | $\frac{2}{3}$ |
| *g'* | 21 | 21 | $\frac{2}{3}$ | *c* | 32·5 | 31·5 | $\frac{1}{2}$ |
| *a'* | 18·5 | 18·9 | $\frac{3}{5}$ | | | | |

In ordinary conversation the female voice had periods, the length of which was between 25·5 and 36, and the keynote varied from *e'* to *ae's*.

PERIOD LENGTHS AND KEYNOTE OF SPOKEN VOWEL SOUNDS (Female Soprano).

| | | | | |
|---|---|---|---|---|
| *De* | *Die* | 27·5 | > *dis'* | 293 |
| *ze* | *se* | 30 | < *c'* | 269 |
| *klin* | *Vokale* | 28·7 | > *d'* | 281 |
| *kers* | *Vokale* | 30·5 | < *c'* | 264 |
| *zÿn* | *sind* | 26·5 | *dis'* | 304 |
| *ge* | *ge* | 35 | < *ais* | 230 |
| *zon* | *sun* | 27 | *dis'* | 298 |
| *gen* | *gen* | 34 | > *b* | 234 |
| *te* | *zu* | 31 | < *c'* | 260 |
| *Am* | *Am̄* | 27·5 | < *d'* | 293 |
| *ster* | *ster* | 36 | *ais* | 224 |
| *dam* | *dam* | 26·5 | *dis'* | 304 |
| *op* | *auf* | 29 | *c'-cis'* | 278 |
| *een* | *ein* | 27 | *dis'* | 298 |
| *Maart* | *Mārz* | 25·5 | *e'* | 316 |

Boeke's own voice, in ordinary conversation, ranged between 180 and 250 double vibrations per second, so that it was almost an octave lower than that of his sons, while the female voice came between.

VOICE IN ORDINARY CONVERSATION.

| Male (55). | Female. | Child (13). |
|---|---|---|
| 180—230 | 224—316 | 366—410 |
| *fis*—> *a* | < *ais*—< *e* | > *f*—< *a'* |

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Boeke also gives a very interesting table showing the duration and keynote of laughing (male).

| No. of Ha sounds. | Duration in seconds. | Duration of the Pause—seconds. | No. of Periods of Ha sounds. | Keynote. | |
|---|---|---|---|---|---|
| 1 | 0·097 | 0·178 | 37 | 381 | *g'* |
| 2 | 0·073 | 0·160 | 31 | 424 | *a'* |
| 3 | 0·088 | 0·161 | 32 | 384 | *g'* |
| 4 | 0·070 | 0·174 | 21 | 298 | *dis'* |
| 5 | 0·054 | 0·198 | 14 | 261 | *c'* |
| 6 | 0·041 | 0·186 | 10 | 244 | *b* |
| 7 | 0·051 | 0·180 | 12 | 243 | *b* |
| 8 | 0·051 | 0·200 | 12 | 243 | *b* |
| 9 | 0·054 | 0·188 | 12 | 223 | *ais* |
| 10 | 0·044 | 0·194 | 10 | 230 | *ais* |
| 11 | 0·046 | 0·189 | 11 | 238 | *b* |
| 12 | 0·049 | — | 11 | 226 | *ais* |

| | |
|---|---|
| Entire duration of laughing, . . . | 0·712 |
| " of pauses, . . . | 1·998 |
| Together, . | 2·71 seconds. |

WORDS.—A study of the phonographic record of words shows what a word is from the physical point of view. This I explained to the Royal Society of Edinburgh in 1886, and the subject has been investigated more thoroughly by Mr. W. R. Lloyd, of Liverpool.

When the record of a *word* is examined it is found to consist of a long series of waves, the number of which depends (1) on the pitch of the vowel constituents in the word, and (2) on the duration of the whole word or of its syllables individually. There is not for each word a definite wave-form, but a vast series of waves, and, even although the greatest care be taken, it is impossible to obtain two records for the same word precisely the same in character. A word is built up of a succession of sounds, all usually of a musical character. Each of these sounds, if taken individually, is represented on the phonograph record by a greater or less number of waves or vibrations, according to the pitch of the sound and its duration. The pitch, of course, will depend on the number of vibrations per second, or per hundredth of a second, according to the standard we take, but the number of the waves counted depends on the duration of the sound. As it is almost impossible to utter the same sound twice over in exactly the same fraction of a second, or in the same interval of time, the number of waves counted varies much in different records. The rate per unit of time determines the pitch, the number the duration of the sound. In a word, these successive sounds blend

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into each other, and, in many records, the passage from one pitch to another can be distinctly seen. The speech sounds of a man to the ear not consciously engaged in analysis, appear to vary in pitch from 100 to 150 vibrations per second, and the song sounds of a man from 80 to 400 vibrations per second. The sounds that build up a word are chiefly those of the vowels. These give a series of waves, representing a variation in pitch according to the character of the vowel sound. As in the record of a spoken word the pitch is constantly moving up and down, the waves are seen in the record to change in length. It is also very difficult to notice where one series of waves ends and where another begins. For example, in the word *Con-stan-ti-nople*, the predominant sounds are those of o–a–i–o–ill, and the variation in pitch is observable to the ear if, in *speaking* the word we allow the sound of the syllables to be prolonged. If we look at the record of the word, we find these variations in pitch indicated by the rate of the waves, or, as the eye may catch this more easily, by the greater or less length of wave according to the pitch of the sound. The consonantal sounds of the word are breaks, as it were, in the stream of air issuing from the oral cavity, and these breaks, owing to labial, dental, buccal, or glossal vibrations, produce sounds that have also often the musical character of vowels. Thus at the beginning of "Constantinople" we have, as will be observed on pronouncing the syllable very slowly, the sound *ŭkkō*. This sound is represented in the record by a series of waves. Then follow the waves of the vowel *ō*. Next we have the sound *nn* (driving the air through the nose), also represented by a series of waves. Next the hissing sound *iss*, which has first something in it of the vowel *e* or *i*, and then the *ss-s*. This sound also is shown by a series of waves. Then there is *tŭ*, which has a double series of waves, (1) those for *it*, or *ť*, and the next for *ŭ*. This passes into the prolonged vowel *ā*, this into *nn*, this followed by *ti* passing into the vowel *ī*, then another *nn*, then a long *ō*, then a sound like *opp*, and lastly the sound *ill*, a sort of double vowel sound. As so many of these sounds have the characters of vowels, it is impossible by an inspection of the record to say where one set of waves begins and another ends. There are no breaks corresponding to the consonants; the vibrations of the consonants glide on as smoothly as those of the vowels. The *number* of waves producing a word is sometimes enormous. In "Constantinople" there may be 500, or 600, or 800 vibrations. A record of the words "Royal Society of Edinburgh,"

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spoken with the slowness of ordinary speech, showed over 3,000 vibrations, and I am not sure if they were all counted. This brief illustration gives one an insight into nature's method of producing speech sounds, and it shows clearly that we can never hope to read such records in the sense of identifying the curve by an inspection of the vibrations. The details are too minute to be of service to us, and we must again fall back on the power the ear possesses of identifying the sounds, and on the use of conventional signs or symbols, such as letters of the alphabet, vowel symbols, consonant symbols, or the symbols of Chinese, which are monosyllabic roots often meaning very different things according to the inflection of tone, the variations in pitch being used in that language to convey shades of meaning.

Words, therefore, consist physically of certain combinations of sounds which are linked together. The sounds vary in pitch even in ordinary conversation. They vary in pitch according to the duration of the vibrations composing them. The number of consecutive vibrations necessary to enable the ear to detect the sound may be very small, even so few as from two to five being sufficient. This is illustrated by the number of marks made on the cylinder of the phonograph during the utterance of the sound. The sounds may vary in intensity according to the accent or emphasis with which they are spoken, and the intensity is represented on the wax cylinder by the depth of the impressions. Lastly, they may vary in quality, and the quality depends on the form of the impressions on the cylinder, or, rather, on the capacity the ear possesses of resolving the sound, corresponding to a complex wave, into its harmonic constituents. We may not consciously make the analysis, but we are affected by the quality of the tone, and it only requires an effort of attention, aided by appropriate resonators, to effect the analysis.

Phonograph records also enable one to study effectively the sequence of speech sounds as in speaking with moderate quickness and in reading. In general, I have been able to substantiate the views of Dr. Lloyd, given in his able papers in "*Phonetische Studien.*" * In ordinary speech there are (1) breathing places or breathing pauses, and (2) shorter pauses, often between individual words, or "stress breaks." Breathing pauses are determined by the number

* "*Phonetische Studien*"—Beiblatt zu der Zeitschriff die Neueren Sprachen, 1890, 1891, 1892, 1897-8.

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of respirations per minute, and these may be from 17 to 25 per minute. In calm breathing the number of respirations is from 14 to 17, but in speaking or reading the effort increases the number of respirations. The movements of breathing are more easily shortened than lengthened, and in rapid speaking or reading this can easily be detected. The pauses may also be seen in the phonographic record. It is also instructive to note the rate of speech. An ordinary conversational rate is from 150 to 160 words per minute; in deliberate speaking the number may fall to 120 to 130—a rapid speaker may give utterance to about 300 words per minute. Now, if we number the distinctly different sounds that occur in words, and which we may call *phones*, rapid speech gives forth about 1,200 phones per minute, or about 20 per second.

It is interesting to make an estimate of the surface covered by the marker of the phonograph in recording words. If we take the circumference of the cylinder at $7\frac{1}{2}$ inches, and the number of grooves per inch in lineal measurement of the cylinder as 200, and the extent of surface covered as 3 inches, then $7\frac{1}{2} \times 3 \times 200 = 4{,}500$ inches, is the distance covered in 5 minutes, or 900 inches in 1 minute. If, now, we divide 900 by 300 (the number of words spoken per minute in rapid speaking), we find that, on the average, the distance covered is 3 inches for each word, and 6 inches for each word in ordinary speaking, and this gives about $\frac{3}{4}$ inch for each phone.

Words are composed of one or more syllables. The syllable is a more important entity, from the acoustical point of view, than the word. The ear hears only syllables, combined in groups, rarely consisting of one word, but the mind resolves these groups into its component words; and it does this so easily that we are apt to imagine that there is a physical division between word and word in speech, just as words appear in a printed page with gaps between. But this is not so. If we listened to an unknown tongue, we would be unable to break up the torrent of sound between two breathing pauses into the words composing it. The running of words together in the phonograph record is such as to sometimes make it impossible to say when one word ends and the next begins, so that there is little hope of our ever being able to read off a sentence from any transcript of a phonograph record, however much enlarged it may be.

A syllable may be defined as a sensation excited by a peculiar pressure or force acting on the ear. Thus it has both an objective

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and a subjective side. The objective physical force, or stimulus, corresponds to the vibrations, more or less numerous, regular, or irregular, that form the tone; and the psychical effect is the quantity and intensity of the sensation. The psychical effect rises and falls as the mechanical force of the stimulus rises and falls, but not in a direct ratio. The question arises—Does the physical stimulus consist only in the impact of a certain number of sound waves, of a certain amplitude?

On this point I am inclined to agree with Hermann, who states that every rhythmic arrangement of the waves is also felt as tone, and sometimes as tone of great power. As we have seen with reference to vowels, the most sonorous vowels owe much of their sonorous character to the fact of a double resonance, say of the pharynx and of the mouth, or to the ratio of the resonance of the two cavities.

In speech the sonorous character of the words, and loudness, arises from the rise and fall of the amplitude of the vibrations that impinge on the ear. The rise and fall is rapid and frequent and very irregular. The voice-channel is opening and closing, now here and now there, each opening marking the beginning, while each closure is the cessation of a syllable.

In the hundreds of physical waves which go to construct a phonogram of one long word, many are almost or quite indistinguishable from their neighbours. Changes in the phonogram occur, not suddenly, but by a progressive alteration of successive waves. Each physical wave has a certain marked type of form. There is a rise, a momentary summit, a marked fall, and a momentary climax in the opposite direction. This description applies to each minute physical wave, a number of which constitute a wave of sonority. Each wave of sonority—that is, the wave which is felt as a whole by the ear—consists of one advance, possibly irregular, one short pause, and one retiral or fall, which, again, may be regular or irregular.

By a phone, I mean that portion of a vocal sound which presents a distinct and separate sensation to the ear. A phone may vary in loudness without ceasing to be a phone. Each phone owes its quality to the resonance or resonances of its articulatory configuration, and the resonance is excited by frictional noise arising either in the glottis or at some point of constriction. A phone may also vary in pitch without ceasing to be the same phone. In Chinese,

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monosyllables are often distinguished from each other in meaning by musical accent—that is, by "glides" in glottal pitch. Again, phones are always combined to form a syllable in such an order that sonority shall rise or fall. The example given by Lloyd is instructive. "Compare the sequence of the two phones *t* and *ch* in the words cheat (*tchīt*) and teach (*tītch*). In the first case the rising stress makes the *ch* more sonorous than the *t;* in the second case the falling stress makes the *t* more sonorous than the *ch.* If we pronounced the *tch* of teach in exact imitation of the *tch* of cheat, we destroy the syllable *tītch* completely. Sonority then rises from the *t* to the *ch,* and the word becomes dissyllabic, *tit-ch.*"

Lastly, a study of phonograms throws light on the nature of certain sounds often used in speech, or as apparently spontaneous interjections. They are not syllables, but rather consonants of a familiar kind. Thus, a sigh is expressed very poorly by a novelist or dramatist by spelling *ah.* It is the release of a deep breath through an open glottis and mouth without the soft palate being raised. Friction occurs in the palate, and this excites resonance in the cavities before and behind it. The irregular mixed resonance gives the sound a peculiar *ö*-like quality. Again, *ugh* is a guttural interjection; and the bi-labial *uppö* is an interjection we may use when we feel too warm, or the air of a room to be very stuffy. These sounds consist of one phone only, and they are faithfully reproduced by the phonograph.

Many consonantal interjections, however, are compound, consisting first of a friction sound, with added sonorous elements. The phones which combine most easily in this way are *s, ch,* and *t.* Thus, *st,* and *tst,* demand attention with the least possible noise; again, *ts,* and *tst,* to urge dogs; also *cht,* and *tcht,* ask for silence; and the sound *tch,* expressive of dissent or disappointment. Similar to these is the sound *pfū,* indicating ridicule, or disregard, or even disgust. Then, the *p* may join with the sounds *s* and *ch*; *psh,* in book language *pish* or *pshaw,* is sometimes heard; and, when we summon the cat, we say *ps, ps.* Again, we find, on the authority of Lloyd, that *tut* is toneless; we may have it beginning with an imploded *t,* as in *tut-tut, tut,* as when we feel a sense of loss or failure; but the *t* may be expiratory, as in *tut, tut, tut,* expressive of impatience. Take, again, the toneless form of *whew,* as when a golfer, after many preliminary flourishes, "tops" his ball, like a quiet whistle, rising and then falling in pitch. We have a few nasal interjections also well given

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by the phonograph. For instance, prolonged *m* may express doubt or deliberation; or we may have a short voiced *m*, preceded and followed by a still shorter voiced *m*, like *mm̆m* snorted out *àplomb*, and expressive of defiance. This is the *humph* of books. It may be *m̆m*, short and abrupt, or still shorter *mm̆*. If the second *m* is prolonged, it loses the note of challenge, and becomes a sceptical sneer, *mm̄*. Then we may have the Scotch interjection *mm̆mm̄*. It is a word of two syllables equivalent to the German *oo*.

There are two or three interjectional combinations made up of a nasal sound and a stop at the glottis. They are like a slight cough, followed by closure of the lips and an issue of the voice through the nose. They may express irony or call attention, when pretending not to do so. Writers express these words by *h'm*, *hem*, or *ahem*, but they are quite unlike the sounds; the sounds contain no vowel.

These sounds, and all the debased forms of sounds that, in certain dialects, link words together, are faithfully recorded by the phonograph, and the phonograms are represented by long series of waves. Such debased expressions as *hi-kant-v-don-it*, "he can't have done it," where *v* is substituted for *have*; or where *z* occurs as a word, instead of *is*, *has*, or *as*, as *ez-zud-z-gold*;

The study of phonetics by means of the phonograph is still in its infancy. It only requires time and labour to work out the true character of all consonantal sounds. When this has been done, then will follow the study of phones and syllables, by which words are built up. It may never be possible to read off any transcript of nature's longhand, as engraved on the wax cylinder of the phonograph, but the time may come when an appeal will always be made to the ear, so that by-and-by our phonographic scroll will be delivered to us every morning, instead of the newspaper, and, being placed in position, we may listen, while we are at breakfast, to the speeches delivered in the House up to midnight. Possibly, also, the arbitrary forms we call letters and words, as seen on the printed page, will disappear, or be only occasionally used when we deal with the literature of the past, and we will then appeal to the ear alone.

Finally, I desire to point out that the phonograph, consulted simply by the ear, is an instrument of great value. It has no rival as a master of diction. In advocating the establishment of a photographic museum, to be a visual register of the past, the French *savant*, Janssen, writes as follows:—"Photography registers the chain of phenomena during time, just as writing registers the chain

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of the thoughts of men during the ages. Photography is to sight what writing is to thought. If there is any difference, it is to the advantage of photography. Writing is subject to conventionalities from which photography is free; writing employs a particular language, while photography speaks the universal language."

But if there is to be a museum of photographs, appealing to the sense of sight, why should we not have a museum of sounds, appealing to the sense of hearing? How little can we tell from written characters the exact sounds of the ancient Sanskrit, or how Demosthenes spoke in Greek, and Cicero in Latin? Would it not now be interesting to hear the exact accent of Old English, or the Scotch of the fifteenth century? All dialects should be carefully registered and put past for future consultation—and, thus, we should do for the ear what we do for the eye. I wish, for example, that I had phonographic records of the real vernacular of "Johnnie Gibb o' Gushetneuk. No doubt, by such a collection of phonographic records the science of language would be benefited.

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*January* 30, 1900.—Dr. WILLIAMSON, *President of the Society, in the Chair.*

Professor ROYCE, LL.D. of Harvard University, U.S.A. (Gifford Lecturer in Aberdeen University), communicated a paper entitled, "Some Characteristic Tendencies of American Civilization."

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## *Some Characteristic Tendencies of American Civilization.*

By Professor JOSIAH ROYCE, LL.D., of Harvard University, U.S.A.

At a moment when the thoughts of serious people in this country are fixed, not only upon the exciting events of the day, but upon the future problems and the new responsibilities which, for you and for the whole British Empire, must grow out of the present situation, I know of no more appropriate topic upon which I can venture to address this Philosophical Society than one which has been suggested to me, as a transient visitor, by some aspects of what I have heard during my journey about this very crisis through which your Empire is passing. I say *suggested to me.* I speak, of course, then, not of your crisis itself, as if that were directly my topic, but of suggestions that have come to my mind as I have thought over this crisis. It is, indeed, very far from my thought to attempt any direct study of that crisis as it exists for you. In such matters, not only would your knowledge altogether eclipse mine; but any comment of mine would be simply presumptuous. You have your present task to do, and, despite all obstacles, you will accomplish it; and I have no desire to offer anything but the expression of a sincere and fraternal sympathy regarding the griefs and the problems which at present rightly lie nearest to your hearts and to your purposes. But my own plan, in addressing you to-night in answer to your kind invitation, is none the less suggested to me, as a guest in your city, by what I have been learning of the nature of your present issues. For the stranger, at such times, learns, of course, through comparisons; and sees your world in the light of his own experience. He is reminded of the similarities and differences between the problems of your history and those of his own country. In such matters, as you will know, it is just through comparison that we attain new forms of self-consciousness. We

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come better to see our own situation when we contrast it with that of our neighbours, and when we at the same time observe the parallels between the two cases. Nations as near to each other, not only in blood, but in their whole spiritual kinship as are America and Great Britain, can never view each other's fortunes and issues considerately and justly without learning from each other. Our destinies, despite very strong contrasts, are of necessity closely akin. Our hopes and interests, despite all that might tend to keep us apart, are intimately bound together. A moment when either of our two peoples is forced to face a serious crisis, to decide a great issue, to pass through grave trials, and to look forward to new duties, is a moment when we can most profitably learn from each other, and can at the same time, through mutual and sympathetic observation, attain a clearer consciousness as to the meaning of our own history and of our task as servants of human civilization.

## I.

What, then, apart from the immediate interest of each day's exciting events, your crisis has brought to the mind of one who, in one sense, is the stranger within your gates, and who is yet, in another sense, the guest constantly feeling anew that he is amongst his true brethren—what, I say, your present problem brings to my mind is, first, the thought of how the characteristic tendencies of your civilization, during the nineteenth century, have contrasted with our American tendencies. And to state at once what I suppose to be the most obvious, the broadest, and the most instructive contrast, it is briefly this:—

Your Empire and our Republic have been, throughout the century, engaged in a career of very great and significant expansion. But we have, on the whole, expanded in different ways, and have undertaken, as we could, somewhat different offices. You have grown, in part, by direct colonization. The United Kingdom has reproduced itself—its general constitutional organization, its political ideals, its social order—by a process, so to speak, of budding, whereby, in Australia, in New Zealand, in Canada, new Commonwealths have either originated, or else, during the century, have grown into strong communities, children and similitudes, in great and essential respects, of the mother country. To this process our own process of forming new

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States has, in a sense, run parallel. But there has been, thus far, the well-known contrast, that our new States, closely linked by our general written constitution to the general government, and directly represented in Congress, have been subject to a far more centralized system of national control than you have undertaken to extend over your Colonies. Moreover, our States have grown up side by side, in the same great territory. Your Colonies are far from you and from one another. Railways now reduce to a very few days' journey the distances between our remotest States; and our most distant possessions, such as Alaska and the Philippine Islands, are not States at all, but regions under the direct sovereignty of the National Government alone. Such distant regions, however, are not characteristic of our system, but appear to us still as accidents of fortune. On the other hand, the oceans sunder by weeks, of even the fastest modern travel, the parts of your complex Empire. And this sundering is characteristic of your Empire. So far, then, the obvious contrast of our country, when compared with your Empire, lies in the greater centralization which has controlled our tendency to expansion, and in the physical continuity that, until recently, has characterised our national domain. But this obvious contrast is associated with yet another difference equally well known.

For your other most characteristic Imperial task, in addition to your formation of your direct Colonial children, has been the government and protection of alien races. This task came to you slowly. But it has long been an essential part of your Imperial duty. You devoted yourselves to the learning of an art that never had been seriously undertaken, in such magnitude and complexity, by any earlier Empire; and you have made this art peculiarly your own. And now, in a way that, with all the obvious contrasts, has its genuine parallel, we, in America, have been led by a process, and to an extent that the founders of our Republic could not anticipate, to the task of receiving, and of uniting with ourselves large masses of population of alien origin. Our own civilization had an English stamp, and always, I believe, will retain that stamp. But we have been forced, as time went on, to try to make that civilization meet the needs of great numbers of foreigners, whose traditions were not our own; whose speech, when they came to us, was foreign; whose prejudices easily aroused a counter antipathy in the minds of our own

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plainer people; and whose customs, had we ever known them in their original home, we should not easily have understood.

Now, both your tasks and ours have, in this respect, shared in common the obvious trait, that you and we were alike attempting to make the political traditions and the social arts, whose origin lay in Great Britain, suit the needs of peoples to whom this civilization was in greater or in less degree originally alien. But, of course, the contrast here is so great as easily to obscure the parallelism. For, except in case of the North American Indian, in whose wise management we very largely failed; in case of the Chinese labourers, whom, as far as possible, we have now rejected; and, finally, in case of the Negro, who gives us still our most pressing social problem, our dealings with the alien populations have generally been confined to men of European stock, and so of kindred races and religions; while in India, your care has been with great success extended over a very varied collection of peoples of a very distant type and civilization. In taking up what is now inevitably known, in popular speech, as the "white man's burden," you, therefore, have the "dear-bought wisdom," while we are still in the most rudimentary stages of this art. But, on the other hand, in dealing with our less alien and more plastic foreign populations, our civilization has indeed developed powers which you have nowhere had occasion, as yet, to display upon anything like the same large scale. For our foreigners have not been, on the whole, alien races who were to be protected in the enjoyment of their native institutions, despite their acknowledgment of our sovereignty; they have been strangers upon our shores who were to be, and who, in large measure, already have been, assimilated, so that they were not to retain their own civilization, but to acquire ours, and were not to remain our subjects, but were to become our fellow-citizens. Accordingly, while your Imperial arts have been largely those of a benevolent government of your subject races, our social arts have been far more those of linguistic, political, and moral assimilation. This word, *assimilation*, then, names our peculiar and most characteristic tendency, in so far as our life stands in contrast to yours. The word applies, moreover, not only to the assimilation of alien races, but to the organization into one close-knit nationality of the diverse types and regions of our country.



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II.

So much, then, for a glimpse of the past development of our two forms of national life. But now, as to the present and the future, we seem indeed to be destined, in a measure, to become more and more alike in the essential nature of our two offices. We Americans have been recently forced, by a strange combination of good and evil fortunes, to begin the learning of a task that is essentially like yours. We, too, are henceforth to undertake the business of accomplishing, in distant regions, the protection and the government of alien populations, who will never become assimilated to our own. While, as for you—what more obvious lesson of your present situation is there than this, viz., that, apart from the momentary complications of your immediate crisis, the task of the future with you is the task of knitting closer the social, if not also the political constitution of your Empire, and of assimilating peoples with whom it is your destiny to live, and from whom you do not differ so widely in race that such future unification is impossible? In its larger aspects, the problem, of which your momentary crisis is a symptom, is plainly a problem of assimilation. We in America have had to deal with many such problems. As in your present case, so in our former life, one such problem with us led to a great war. That problem was the problem of bringing to a tolerable assimilation the types of civilisation belonging to the North and to the South. And the successful issue of that war with us meant in the end the liberty and the fraternity of the very people whom the passions of four weary and terrible years seemed hopelessly to have sundered.

At the great crisis of our national history, when we, too, waited for days, weeks, months, for the eagerly-desired decisive news, and when with us the months lengthened into years, and ill success came again and again to our armies, and hope deferred and precious lives sacrificed made the whole nation heart-sick with sorrow and longing and dread—it long seemed as if the sole alternative before us was, *either* the hopeless loss and ruin of our whole national existence, *or else* a future in which one great section of our country would survive only as a subjected region, estranged from us in heart, and permanently embittered by defeat. But the result has shown us how false even our seemingly best-founded fears of those days were. The old

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enemies are now brethren. In our recent foreign wars, the North and the South stood side by side, not only as co-workers, but as enthusiastic rivals in the effort to show loyalty to the common country. In the South, the story of the Civil War—a war so earnestly fought out to the point of an absolutely honourable, because inevitable defeat—this story, I say, now survives, in the ideals of the new generation of Southerners, as a very precious memory of heroism and of endurance. It survives in sentiments of pride, and of affection for their dead. But the bitterness of the conflict, for this same new generation, has wholly passed away. The great lesson of our Civil War has been learned, and the fruit of this war is enjoyed by both the parties to the old conflict. We begin to see now that both the Confederate and his conqueror worked together, in the mysterious way that history so often exemplifies, to escape from the bondage of a destiny which the past had transmitted to that generation, to solve a problem which, alas, we fallible mortals in that land could only solve by fighting, and to prepare the way for a truer union that could only come into existence when the old issues had been thoroughly and honourably fought out.

A few weeks ago, during a vacation, I made a visit to some of the best-known and tragically remembered of our Southern battlefields. In many places, even where little local attention has been devoted to preserving the traces of the old conflicts, or to setting up monuments to mark historic spots, one still finds the original lines of earthworks, about which, in some cases, young forests of pines have now sprung up, half hiding the signs of the days of bloodshed and of patriotic devotion. Here brave men and true fought, sometimes for days in succession, and often in apparently useless struggles, which for the time decided nothing, but led only to new and equally stubborn conflicts elsewhere. All concerned fought in defence of everything that their hearts held dearest, and in the furious hatred that only brethren can know when they war together. Yet now, when one wanders in the solitudes, under the warm Southern sky, and among the young pines, whose roots grow through the banks of the old entrenchments, or whose branches overshadow in the cemetery near by the graves of the dead, it is indeed a comforting thought to remember, with reverence for all those who died there, that they died not in vain, that their devotion has led to the solving

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of the old problems, and to the coming of a new life which none of them could have foreseen—to the passing away of much that was narrower, and to the higher consciousness of a more united civilization. The descendants of those foemen will not retain the old hatreds. They will honour each other the more because the fathers knew so well how to die for ideals. Had not both sides been so much in earnest, there would be to-day far less hope for our common country, for our race, and for our type of civilization.

And so, when the frivolities and the frequent social ills that are indeed present in some aspects of our national life sometimes sadden us Americans, the memory of the Civil War always helps us to look deeper, to know that the most formidable appearances of weakness of character which we can observe are but superficial symptoms, and that at bottom our people are the inheritors of the blood and of the traditions of the men of '61. In brief, our war, just because it had to be fought out to a finality, resulted in attainments which our civilization could never have won without it. No desire for a renewal of any of its most essential issues survives amongst us in the minds of people whose feelings are of any serious social or national significance. The future of the American Negro is still a great problem; but nobody desires to see him again a slave, or seriously wishes the old slavery days back again. The Southerner, as I have said, is still as proud of his history, including that of the Civil War, as ever he was. But nobody genuinely desires any form of revenge, or keeps alive the sentiments that inspired the conflict. The South has still a keen and common political consciousness, and votes, where national issues are concerned, in a decidedly sectional fashion; but the honor and the deeper unity of the nation are to-day as dear to the former Confederate as to his New England brother. In brief, the outcome of our greatest national crisis, and one of the bitterest and most stubbornly-contested of all modern conflicts, has been, not separation, nor yet mere conquest, nor even prolonged hatreds, but national unity, a satisfied sense of historic honor in the minds of all those most concerned on both sides, a deep lesson in the seriousness of national life—a record of devotion. And, above all, the outcome has been a measure of true assimilation of North and of South, without any merely destructive confusion or simple mingling of their types of civiliza-

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tion. For these types still preserve a certain wholesome individuality at the same time when they contribute to the life of one nation.

I have been led thus to speak of the greatest of all the cases where our characteristic American tendency to bring to a true assimilation social tendencies that at first seemed to be in hopeless conflict, met with enormous obstacles, and overcame them. Since your modern Colonial policy developed, and your new Empire came, during the nineteenth century, into its more recent form of existence, you have certainly met with no greater problem than was ours before the Civil War; and, during the same historical period, you have certainly never passed through any moment when your whole destiny was so endangered as was ours in the year preceding the battle of Gettysburg. But when your skies are stormy, it is perhaps well to recall, not only your own more distant and glorious historic past, but also the crisis through which we, your brethren, were called to pass not many years since. For our problem was then not wholly unlike, in its deeper social motives, the one which your present destiny brings you to face. I am sure that I but express what is in all your hearts when I put in words the wish and the confident hope that when, forty years from now, the wanderer visits the South African battlefields now so stubbornly and painfully contested, he may be able to say, without reserve, that your heroes there offered up their lives for the common cause of human unity, of organized civilization, of fraternal peace, and offered them not in vain—that race hatreds might be made to cease and not be perpetuated, and that your Empire might become, not only the protector of alien subjects, but the assimilator of men of kindred blood, and the object of a common loyalty, even to those who now, perhaps, fail to comprehend their true share in your destiny. You have often carried power, protection, and order into remote regions. May you in future more fully knit together your Empire by the ties of a conscious community of ideas, of interests, and of civilization. May your wars end in liberty and in future brotherhood.

## III.

And now for a few more detailed observations concerning the way in which the assimilating tendencies of our American civilization have been manifesting themselves. Our thirteen

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original States which formed the Union, at the time when the Constitution was adopted, were all situated, as you know, upon the Atlantic border. At the outset of our history, intercommunication amongst them was very difficult, local jealousies were very keen, and the Union itself was a doubtful political experiment. Beyond the Alleghanies, the wildernesses of the Missisippi valley were then only at the beginning of the process which later brought them so rapidly to settlement and prosperity. Further west still lay territories that only later purchase and conquest brought into our domain, and that were not fairly explored until after the middle of the nineteenth century. That all this country should ever come under one political dominion at all seemed very doubtful. That such domination should follow the political methods defined by our Constitution appeared to many of our foreign observers, in the early periods of our national existence, still less likely. Your own experience with your Colonies in this century has shown how easily the tendency might have developed, amongst us, to the gradual formation of various new communities in the West, each one of which should attain a practical independence of the central government. And yet, this is not what has occurred. We have expanded, but as a nation. We have developed our new States, with their own governments; but the unity and the limited sovereignty of the National Government, within the bounds laid down by the written Constitution, have come to be unquestioned. The social contrasts of East and West, of North and South, have not been lost; they have grown diversified. But ours is still one civilization.

And more than this—so vast a territory could only come to be settled through the aid of great numbers of foreign immigrants. Such have come to us in multitudes—from your own shores, from Ireland, from Germany, and from Italy, as well as from Scandinavia, and, of late, from Poland, from Hungary, and from still other lands. These new comers have brought to our shores languages, customs, traditions, and religious interests, which were not ours. In many cases, they have naturally tended to group themselves into little communities, such as you find in many of our cities, and such as, in some cases, have occupied considerable country districts. Now a critical issue for our destiny was, of course, from the first, the question whether these various

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types of people should retain, for a series of generations, their own national or social characteristics and prejudices, their own speech, their own mutual antipathies; or whether they should become one with us. As a fact, you know the general result. Upon your side of the Canadian border, the French Canadians, by reason of something that seems so far characteristic of your Imperial life, despite their political loyalty and the liberty that they enjoy, have kept true to their type, have retained their social consciousness, have resisted assimilation, to an extent to which, as I think, upon our side of the border, you can find little that is parallel. We have our Germans, or Scandinavians, or Poles, or Russians, of the first generation, who live by themselves, and in their own streets of our greater cities. But their children are, on the whole, pretty rapidly won over to our speech, and to our characteristic American interests. The Irishman retains in the first generation his well-known political traditions, and his perplexing and fascinating national disposition; but his children, or at all events his grandchildren, are, on the whole, far more American than they are Irish in their social traits and in their ambitions. At all events, our Irish are, in national sentiment, very loyal Americans.

In the critical matter of religious faiths, very notable tendencies are observable in the life of our country when it is viewed with reference to this matter of assimilation. The Catholic Church has, of course, a very strong sense of the importance of retaining its hold upon the great numbers of its children who are amongst the originally foreign portions of our population. It has been much concerned, as we Americans have been given to understand, with the question how best to keep under its influence the second and later generations of those who, by hereditary tradition, ought to belong to it, while by origin they may have been Poles, Germans, Hungarians, or Irish. So far as we can see, that Church, after many discussions amongst its own leaders, has decided upon the whole, and despite many diplomatic hesitancies of speech, in favour of a distinctly Americanizing policy in the conduct of its internal affairs in our country. While it insists, so far as possible, upon parochial schools, and desires the children of its faithful to be educated in them rather than in our public schools, and is, of course, strictly opposed, amongst us as elsewhere, to tolerating variety in matters of faith, it is careful,

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at present, to further this policy by means that shall be as little as possible of a nature to lead to direct contests between the interests concerned and our American political and social traditions. Its whole attitude with us is one of insistence upon the importance for America of religious liberty in all matters that have to do with politics. And with regard to the great practical question whether it shall attempt to keep its hold upon the children of its peoples of foreign origin by encouraging them to retain their original foreign speech and customs, the Catholic Church seems, upon the whole, to have decided that the parochial schools should not deliberately attempt to foster and perpetuate the foreign tongues, but should rather tend the other way; and that no systematic effort should be made to build up, as permanent institutions, Polish, German, and other national and foreign sections of the Catholic Church in America. In brief, so far as I understand the case, the Catholic Church with us has learned to respect the principle of assimilation, to conform to it, and to try to win success by conciliating the American people, rather than by emphasising in any unnecessary way the foreign source of the social tendencies upon which it might very naturally be thought to depend for much of its strength. Here again, the contrast between the policy of the Catholic Church upon our side of the border, and upon yours, in Canada, has sometimes seemed to me quite notable and symptomatic. You may remember how vigorously, not long since, the Canadian hierarchy intervened in a political contest wherein the policy of the Canadian Premier Laurier in a matter concerning the educational interests of the Catholic Church was at stake. I know nothing of the merits of that controversy. I know only that at a moment when the Catholic Church, under the leadership in the United States of the former Delegate Apostolic Satolli, was very obviously doing whatever could then be done to avoid any political contests, and to make its own interests seem to us Americans as little foreign as possible—on your side of the border the bishops were openly using threats of excommunication, addressed to their own French-Canadian children, and with reference to the issues of a current Parliamentary election, and in reference to the way in which the faithful were to vote in that election. It is long since upon our side of the border we have heard of such interferences. They do not belong to our type of social and political

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life. They seem to be still more or less possible in Canada. The Catholic Church is a great power amongst us with its six or seven millions of communicants, and, of course, our new territorial acquisitions will make it, in future, a still greater power. But I may at once frankly say that I suppose the Catholic Church to be, with us, a very valuable aid to our process of assimilating the foreign elements of our population, since, despite its own originally foreign types of tradition, it keeps great masses of our foreigners under a conservative control while we are engaged in the work of making American citizens out of them. And while it is, of course, alive to all its own interests, with us, at present, it avoids open interference in political matters as far as possible.

Certain it is, at all events, that our civilization is not tending to assume the types of any of these foreign and non-English types of which I have spoken. We remain ourselves, and we bring the foreigners to our own type of customs. In the newer regions, as, for instance, in my own native State, California, the social order and the political life have been determined in their development —not by the very various sorts of foreigners who, from the days of the first gold discovery, have been so frequent in California— but by the contest between the Northern and Southern types of American ideals and institutions. It was New England and the South that fought, not here with arms, but with arts and traditions, to shape the earlier Californian civilisation. The result has been, very naturally, the development of a new type. The Californian is neither Northerner nor Southerner in his general character, but he is distinctly American, and neither the older Mexican traditions nor the foreign immigrations have decided what manner of youth California should bring forth.

## IV.

So far I have been illustrating the facts with regard to the extent to which the assimilation of an alien population has gone in America. But you will be interested now to hear something about the means by which this assimilation is accomplished. It is easy to distinguish, in the causes which have led to this power of assimilating a large number of new comers to our own language and ways, two classes of causes—the material and the ideal. The material causes have, of course, played an obvious and very large part in the process. The physical continuity of the country, the

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gradual extension of settlement from place to place, the large developments of modern industry which have led to a constantly increasing connection of the life of one part of the country with the life of another—all these are features which necessarily have had a great influence in helping our people to a unity of consciousness, and in making it plain to the new comers that they must adapt themselves to an already existing situation if they were to find their way under our conditions.

On the other hand, one must not neglect the importance of the purely ideal features in our civilization. In my discussion to this Society a year ago, I had occasion to mention the fact that, to my mind, our nation, which had been so much accused of materialism, is really under the influence of very ideal motives. I had hardly then so much occasion as I may now have to point out to what a great extent these ideal motives are of English origin. When I spoke about academic developments, I necessarily pointed out the close relations that we have had with German Universities, and with the learning and science of the world, in so far as they are not only of English, but also of Continental European origin. But our political and social life is founded unquestionably upon motives that may be easily and directly traced to their sources in these islands. The American has been dependent for his social successes upon the retention of a very large body of ideas that the whole history of these United Kingdoms has brought into existence. And ours is a world where, after all, ideas in the long run conquer. To such ideas material conditions are on the whole secondary. It is a wonderful thing to begin a national life with the possession, in great measure, of the social, political, and the ideal fruits of an older civilization. If one must mention in particular the masses of older ideas that have been of the most importance to us, one first thinks of the English system of common law. This system with us, as in your Colonies, has extended the range of its application, and has received a new life under the special conditions of our Commonwealths. Then, in the second place, the English language itself, with its greatest literary treasures, has been ours. And with a language and a literature, there goes, of course, a vast treasury of ideas. And, in the third place, we are the inheritors of your ideals about human freedom, about individuality, and about tolerance towards strangers and towards all strange conditions.

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These are ideals which have characterized the whole life of the Anglo-Saxon people.

And now as to the way in which these fundamental ideas of our civilization come to be applied in our life. I fear that it is not easy to imagine in what way and how directly they influence the life of a new community formed under the conditions under which our new communities have constantly been formed. Let me attempt, then, a more concrete suggestion.

I, myself, as I have already said, am a Californian. I grew up in a very new country. To many of you it is simply the country of Bret Harte's stories; but no Californian can recognize in the early mining life as depicted by Bret Harte any more than such a creation of romance as is possible under any conditions. The mining camp of Bret Harte bears much the same relation to the actual early life of California that the ideal shepherd and shepherdess (so well known through a style of poetry that once was common) may bear to the life of the actual country folk who tend their flocks. For just as the idyll is always possible, so any other romantic transformation of facts may be suggested by many different social conditions. But the real life that you find in a new country is not to be judged by any such romantic sketches. Yet what actually happened in early California is a very fair illustration to you of the way in which a new American community is formed.

The gold excitement of 1849 brought within a short time a vast number of strangers to a new territory to engage in an occupation of which, at the time of the gold discovery in California, very few Americans indeed had ever known anything whatever. Hardly anybody who came to California from the older American States was at all acquainted with gold mining. One may except, perhaps, a very few possible miners from the State of Georgia. Therefore, the new life had to be begun under very strange conditions. Meanwhile, not only Americans, but also a great many foreigners had been equally attracted to the new country. They came from South America, from the Far East, and from Europe. The inhabitants thus brought together seldom intended to remain for any great length of time in California. Most of them felt themselves to be mere wanderers. They had come to acquire a quick and easy fortune; they would soon return. The new land, as most of them at first thought, was

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to mean little or nothing in their future life when once fortune had been won. Very quickly, of course, a great many of them discovered their mistake. Fortunes are not quickly and easily to be acquired by any considerable number of men in the occupation of placer mining. That occupation, as was soon found, is a very laborious and a very expensive occupation: at least in case one has to undertake it at a great distance from the base of supplies. On the other hand, it was soon observed that the climate of the new country was very attractive, and, what with ill-fortune and hard times in the mines, and with unexpected opportunities to begin agricultural or other occupations in the new land, and with the natural attractions of the region, before long a great many of the new comers found that they must indeed, and not very unwillingly, spend their lives there. Some of them—especially of those who had crossed the Rocky Mountains to the new country—had brought with them their families. Others soon began to send for their families. And, within a few years, a considerable population of a representative American character, coming both from the old North and the old South, as well as from the middle West of our country, were actually undertaking to live permanently in the new State.

At no time in the early days was there that population which Bret Harte's stories seem to describe, namely, a population composed wholly of rough frontiersmen, who, even in 1849, had already lived for years as miners, or as people of some similarly irresponsible type. Very few large mining camps were ever long left wholly without the presence of families. Very few remained for any length of time prosperous without passing into the condition of somewhat stable towns. And the great lesson of these early days, as we Californians of a newer generation have since come to read the lesson, is one of the swiftness with which many of the most essential conditions and institutions of civilization may be carried to a great distance, and may be rapidly brought to a new growth in a new State. This is what has since occurred all over our great West. California was only one of the most notable instances.

Even in the midst of the most exciting days of 1849, a company of the settlers and miners who were not so sure that their life in the State was to be transient, and who looked forward already to an ideal future from the Commonwealth, found them-

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selves elected by their fellow-citizens to meet in a Constitutional Convention, and to make a Constitution for the new State. With an easy self-sacrifice of their present advantage, these men devoted some months during the busiest part of the golden days to the work of providing the new State with its organized law. They took the task very seriously. They followed the models of our older State Constitutions. They worked with great deliberation and foresight. Then they sent delegates with their new Constitution to the Congress at Washington. The Constitution, to be sure, had first been adopted by a vote of the people of the State. But at Washington they applied for admission to the Union. This Constitutional Convention of 1849 in California was a perfectly spontaneous act of its own inhabitants. It was authorised by no act of Congress. But as soon as the crisis which then existed in the slavery controversy in Congress could be settled with reference to the application of California, the State was admitted to the Union in 1850. Thus quickly the new life was organized, and after the fashions of our older States.

In San Francisco, which was naturally the base of supplies for the whole State, a large mercantile community quickly grew up. This community was, of course, of paramount importance for the political life of the State. Meanwhile, in the mountains, mining camps turned into mining towns, and later, in the successful cases, into towns of a decidedly permanent type. Agriculture soon began to flourish even in the midst of the mines, although it was impossible at that time to get any land titles in the mountainous mining regions except with a land tenure founded wholly upon actual occupation. On the other hand, nearer the coast of the Pacific, and outside of the mining region, there were land titles to be bought. But these were the subject of many controversies, because of the certain difficulties which long existed regarding the old Mexican land grants upon which such titles were founded. In consequence a large company of lawyers soon found themselves supplied with ample means of earning a livelihood in California. In general, in our newer communities, the legal profession forms one of the most powerful, if one of the most expensive, of the forces of conservative civilization. The political issues of the older portions of the country also came, of course, along with the new inhabitants. In view of all these social forces, it is not strange that, by the time that ten years of

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early California life have passed, the State had in many ways become a populous and a perfectly definite American community, with very progressive tendencies, but also with many conservative forces. The general traits of its civilization were prevailingly determined, as I have already said, by the relations of the settlers either to the New England, or in general to the Northern, tradition, or else to that of the South. But the oldest Mexican type of social order which we had found when we first came to the new land rapidly became a mere romantic memory, while the great masses of foreign new comers had wholly been subordinated to the American type.

And now, if I may speak of some of my own personal memories, in so far as they illustrate what the social conditions of California early became. I myself was born and reared as a child in a mining town which was five years older than myself. I shall always remember the surprise with which I heard my mother remark at a moment in my childhood when I first began to be conscious of my world that this town and its life had the characteristics of a new community. I remember thereupon vaguely wondering, as I looked at the things about me, "Why do they call all this new?" To my mind, so far as I could observe, the town seemed quite as if it had always been there. The old people taught me the old ways just as the people of any land teach a child, and the old ways seemed to me very old. Now this child's feeling, unfounded and foolish in one sense as it was, was still not wholly without a very good warrant. For I was actually surrounded by precisely the conditions and the interests that must tend to bind the minds of your own young people to the distant past. Were not the churches numerous in my native town? Were there not the schools and the families, the clergymen and the religious controversies? Was not one instructed at home in his Old Testament history? Was not the earliest secular literature that I read such as told me about the ways of the days of old, and about the knights and the heroes, and the kings of olden times? As a fact, most of the great men and great events of history about which I heard were those that fascinated your own childhood. To be sure, I also heard a great deal about our War of Independence and about the deeds of Washington. But then these things, too, were not matters that belonged to the mining town in so far as it was new. And if the

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stirring events of the Civil War, that were just then occurring, also filled a great deal of my childish imagination, these were not mere local matters. In brief, I was in California a child of the civilization of the fathers just as truly, if not as elaborately, as the like thing is true of any of you.

Again, all about me there were foreigners—French, Spanish, German, Irish, English in their origin as the case might be. Now there were, indeed, some of these foreigners who were, of course, to me and to all of us quite unintelligible and unassimilable. Such were the Chinese. But in general, even in a community composed, as my own native town was, of the most various nationalities, there was present the same tendency to an assimilation from the very outset. The foreigners determined no important part of our life. We, in turn, were moulding to our own ways their life. Our real interests lay in the country as a whole, in the exciting fortunes of the Civil War, in the history of our glorious past as represented by Washington. They, the foreigners, had no such interests and ideals to hold them together. In the end their systems of ideas must yield to ours,—and did so. Thus, as you see, we who were Americans early learned the necessity of tolerating that we might assimilate, while the foreigners, from the first, tended to accept the situation and to become assimilated.

You will pardon, I hope, this use of personal reminiscence. I have merely wished to illustrate what I suppose to be typical of American frontier life under all the more wholesome and stable conditions. What I have desired to suggest to you is the swiftness with which, in our newer communities, the order of an actually ancient, because Anglo-Saxon, civilization establishes itself, the strongly conservative motives that mould even our frontier life, the way in which our consciousness of national unity lies deeper than our manifold sectional differences, and the way in which our lands, our customs, our language, our churches, and our schools give our newer communities the power rapidly to control, easily to tolerate, and in the course of a generation or two, largely to assimilate our varied foreign types of population.

## VI.

But now, as I close, let me try yet further to characterise the precise reasons why we have thus been so skilful in assimilation.

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The chief cause of the vast assimilative power of the American civilisation has been, as I hope you may now see, the fact that the strong national consciousness, the pride in being one great and independent people, has joined itself in every case with local pride, and then with that large heritage of ideas which we have from you. It is the organized union of all these elements that had formed a force such as has proved so far in two respects irresistible.

1. It has enabled us to extend our realm very widely, without having the portions of that realm grow as far apart as the mother-country and her Colonies in your case have, in many instances, grown.

2. It has enabled us to meet the foreigner without great concern regarding his new type, if only he would respect our essential customs. It has, meanwhile, shown us that in the conflict of ideas not his but ours would be the determining features of the further development of our civilization.

What I have merely illustrated by my memories as a Californian experience you will find exemplified in a most diverse fashion in the various parts of our territory. It is not merely that new States have rapidly been created, but that the old culture so rapidly enters these new States, and then always enters them in a consciously national form. Of course, it is very easy to confuse this picture of a uniformly growing national life if you dwell upon the perplexities of political controversy. If, for instance, you lay stress upon the way in which the various alien populations present in such a city as Chicago have affected, and often not for good, its municipal organization, you will indeed meet with many disappointing facts. But with us, as with all civilized peoples, culture lies very much deeper than politics. And if our great municipalities are not the organizations that they should be, they are also places where vast powers for good, as well as for evil, are growing. Moreover, as you know, it has been one misfortune of American life that our political activities have often been too much divorced from the rest of our culture, and from all our non-political, moral, and religious interests. Whatever you may say of that divorce (and wherever it has taken place I lament it as much as you can), the fact remains that in judging the American life of a great and complicated city like Chicago, or of a relatively cosmopolitan community such as that

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of some parts of California, you must always remember that, even if the political life is confused, the characteristic culture of the community is frequently very much healthier, very much stronger, and very much more ideal than the superficial look which the insistence of politics would be likely to suggest to you, indicates. And now, as I must insist, the culture of our communities is on the whole distinctly American and, therefore, in the sense in which I have before pointed out, is in its origin strictly British. What we have added in America, and the special ideas that we have won, depend upon our own experience of the life of a new world, upon the guidance that the Fathers gave us at the outset of the history of the Republic, and upon the wholesome evolution of our own national consciousness.

The greater lesson of the whole process, when viewed in this aspect, is the enormous potency of a historical system of ideas—the vast power of civilization at the present time to transfer its own treasures to new regions, and, above all, the power that man has to bring over to his own type apparently alien men, if only they are not too far from him in race, and if only his work in their presence is inspired at once with that general toleration so common in our own civil life, and with that determination so characteristic of our people—a determination that, despite all, our own civilization shall continue in its own way, and shall be paramount.

As you see from the illustration that I just gave, the most potent institutions of our life in extending our civilization have been the churches, the law courts, and the schools. Unquestionably, in recent times, the newspaper, despite some developments that all Americans regret, has also been one of our great assimilating instruments. It is probable that even the most objectionable journals of some of our larger cities actually accomplish in this direction a great deal of good by means of their skill in appealing to great masses of men. They are indeed not of much service in wisely moulding public sentiment about political questions. Very often, as we have found, they have unexpectedly little power in purely political issues. But they are useful in giving to a wide circle of unlearned and even foreign people a knowledge of our common stock of ideas. For, side by side with much that is useless or pernicious, these, our greater popular



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newspapers, even of the worst sort, contain a great deal in the way of often excellent contributions bearing on questions of current science, or on moral issues. They quote from every source, give space to anybody's teachings if only the teacher, good or bad, has acquired a name; and, in brief, they print a great deal that is educating, or that at any rate proves educating to minds to whom such journals appeal. So that even they, despite the considerable evils that they represent, have also decidedly a soul of good. Meanwhile, on the whole, our newspaper press is very decidedly above the level of the worst journals, and has served a great end in making our characteristic stock of ideas known to ourselves. To be sure, the foreigners, as, for instance, the Germans, the French, have their own newspapers in their own tongues. But then our own newspapers have greater financial backing and in the end prove, at any rate to the children of the foreigners, the more interesting reading, and so come to take the place of their foreign rivals.

I have given thus some hint of the way in which with us the ideal motives that have led to our power of assimilation have been developed. I have no time to speak at length of the possibly more obvious material causes that have contributed to our assimilative tendencies. The vast development of the railway systems of the country is a development due not merely to enterprising builders of railways, but still more to great skill in consolidating and in working the railway systems. This development, I say, has served greatly to keep together widely-sundered sections of the country. New England, for instance, is at present dependent for nearly the whole of its food supply upon regions lying very far to the west. In its turn the Far West has, of course, been in a great number of cases a borrower of capital from New England and from other eastern communities. The interdependence of all parts of the country has thus become extremely close. It has been increased of late by those great combinations of capital and industry of which you hear so much, and against which so many things have been said. I have no independent judgment about the issues here in question, but I suppose that these great modern combinations represent almost, if not quite, irresistible social tendencies, with which in future we shall always have to deal, until some great and world-wide revolution ushers in a wholly new type of civilization. However that may

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be, this vast unification of industries leads to both direct and indirect results which certainly tend to the absorption of the foreigu peoples, and to making them part of our system, just as this same unification also does tend to bring into closer unity different sections of the country.

But now, as my last word, I must indeed speak once more of the ideal factors in this great assimilative process from still another point of view. I have spoken of the schools as amongst the institutions that have helped us toward the power to assimilate our foreign population. Last year I discussed in your presence our academic movement. That movement, as you know, seems to me one of the very greatest expressions in the last twenty or thirty years of our national spirit. What we have instinctively felt is that without organized learning our national ideal could not prosper. Organized learning means organized and well-knit social consciousness. The system of ideas of which I have spoken, ideas whose origin is so truly English and whose special developments on our soil are so truly due to our peculiar national genius—this system of ideas, I say, can only be preserved, understood, improved, and in the best way applied and kept assimilative, in case it becomes understood through learning, and interpreted by wise teachers, and kept in close touch with the consciousness of humanity through the prospering of all forms of science and of the liberal arts amongst us. This we have felt. Hence our enthusiasm for educational reform and advancement. The greatest assimilative powers in our life are such as can win expression, and that do win expression, through our educational system. In that system as it now is our academic movement is the principal influence. That was what last year I tried to show you. I can here only recall to your minds what I there set forth at length.

If I may be allowed to speak plainly what this thought brings to my mind as I consider your own situation, I must venture to insist that here we Americans have already a lesson to teach to those who are to guide in future not so much the political as the spiritual fortunes of your Empire. An empire cannot be closely knit by visible ties, except in so far as it is bound by the invisible ties of the spirit. That you all well recognize. But has the general public of Great Britain yet drawn the inevitable inference, the inference which we Americans have already drawn, regarding

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the truth of these two resulting propositions? (1) In the process of assimilation by which a vast empire of widely diverse regions, peoples, and interests, can alone win a stable and organic unity, since the principal permanent factors that can tend to such assimilation are ideas, these factors must all depend for their growth and their strength upon the wisdom, the unity, and the organization of an educational system. For ideas exist and spread through teaching. (2) Since local laws and customs must indeed largely control the organization of the lower schools of any colony or community, the true Imperial unity of an educational system cannot be artificially established by law, but must largely be dependent upon influences such as can only proceed from the central and powerful Universities of the Empire. Or, more briefly put: Imperial unity demands, in the long run, unity of educational system. But unity of an educational system in a great and widely-sundered empire cannot be won through mere legislative enactment. It must be due to agencies that come from above, from the head and crown of the educational system. There must be Universities, and they must not only exist. They must be strong enough to do honour to their own immediate regions, and also to reach and to inspire by their example the more distant regions, to send far abroad their graduates to be the bearers of great national ideals to all parts of the Empire. Such Universities you indeed do not need to create, as we have had to do, in the wilderness. You have them already, if your public would but recognize their primal importance, in the Universities of the United Kingdom. The whole world knows their names; but, after all, do your own people sufficiently magnify their office, appreciate their needs, recognise that they are destined to be the light, not of provinces, nor yet of kingdoms, but of your whole Empire, if you are permanently to retain your Empire, and are to give it that spiritual unity without which neither navies nor generals nor statecraft can permanently secure its political unity. Do your public yet sufficiently observe that political unity depends upon assimilation more than upon physical power, and that the assimilation is a matter, above all, of the power of ideas, while ideas are propagated through educational systems, and while the educational systems, where they succeed, are the creations of a spirit that only Universities can either initiate, or train, or guide, or control, or spread from land to land? We

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Americans have learned to reverence the British Universities for their historical dignity, to learn through their present scholarship, to feel their influence, and often to welcome to our shores, with all the delight of learners, their scholars. Yet some of us will wonder whether their own nation, despite all that she has done for them, and they for her, yet sufficiently recognises, or often enough remembers in the daily life of legislation and of public opinion that in them, above all, lies the chief hope that the Empire of the future will attain the spiritual unity which only ideas can give it. Only through the influence of strong, highly prized, and largely endowed Universities will the Empire come to be closely knit by bands that no varieties of political interest, of Colonial isolation, or of population, can rend. Where the ideas are, there, in the long run, is the power also. That is what we Americans have come to feel. And that is why our Universities, new as many of them are, and humble as their history must often appear, are at present so warmly cherished, not only by their students and their own States, but by the most practically minded of our general public. Is this sufficiently true with you? I hope that ere long it may come to be true.

Well, I may seem to have wandered from my topic. But you must remember that, to the student of philosophy, all topics are more or less connected. A recent Continental historical novelist says, at the close of one of his romances of a heroic past, that he has set down these things for the strengthening of hearts. Your hearts, in this land, I am sure, need no strengthening through any poor words of mine. But in speaking of a distant, yet kindred land, I have hope what I might say might appeal, in some measure, to your own deeper interest, not only in our land, but in your own Imperial future.

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# ABERDEEN PHILOSOPHICAL SOCIETY.

INSTITUTED JANUARY, 1840.

# CONSTITUTION AND RULES.

I.—The Society shall be called "The ABERDEEN PHILOSOPHICAL SOCIETY." Its objects shall be to receive and discuss at its stated meetings original papers and other communications on subjects of Science, Literature, Philosophy, &c.

II.—The Society shall meet once a month or thereby during the Winter Session of the University, and the Secretary shall, three days at least before each meeting, issue circulars to the Members, intimating the place of meeting, the title of the paper to be read, and the business to be disposed of.

III.—The names of all candidates for admission as Ordinary Members of the Society shall be communicated in writing to the Secretary who shall cause intimation of said nomination to be printed on the Circular calling the next meeting of the Society. The admission shall be by vote of the Council at a meeting specially called for the purpose, which meeting shall be held not less than four days after the date of issue of the said Circular. Professors and Lecturers of the University shall be admitted without a vote on being nominated in the usual manner. It shall be in the power of the Council to elect *Honorary* Members without nomination.

IV.—The financial year shall commence on the 1st day of October, and the subscription for the current year shall become due and payable in advance on that date in each year. The entry money shall be Ten Shillings and Sixpence, and the annual subscription Ten Shillings and Sixpence.

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V.—The Treasurer shall lay before the first meeting, in the month of October annually, a statement of the Income and Expenditure of the Society for the previous year, and at said meeting the Office-Bearers for the ensuing year shall be elected.

VI.—The Office-Bearers shall consist of a President, Vice-Presidents, Treasurer, Secretary, and a Committee. These shall form the Council of the Society, and shall have full power to manage the business of the Society.

VII.—None of these Rules shall be repealed or altered, and no new Rule shall be adopted, unless by the votes of at least two-thirds of the Members present at a meeting of the Society specially called for the purpose.

*December*, 1900.

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# ABERDEEN PHILOSOPHICAL SOCIETY.

INSTITUTED, JANUARY, 1840.

## CONSTITUTION AND RULES.

I.—The object of the Society shall be—to receive, at its stated Meetings, Original Papers and other Communications contributed by its Members, on subjects of Science, Literature, and Philosophy.

II.—The Society to meet at least once a month during the Winter Session of the University; intermediate Meetings if business arise.

III.—The Office-Bearers to consist of a President, Vice-Presidents, Treasurer, Secretary, and Committee. These shall form the Council of the Society.

IV.—Candidates for admission as Ordinary or Corresponding Members to be proposed and seconded at any Meeting of the Society, and a vote on their admission to take place at a subsequent Meeting—notice thereof to be given by the Secretary, and one vote in three, if adverse, to be a vote of non-admission. Honorary Members to be admitted according to the same rule. Ordinary Members becoming non-resident may be transferred, at their option, to the list of Corresponding Members without ballot.

V.—Professors and Lecturers of the University to be admitted without ballot, on being nominated in the usual manner.

VI.—Ordinary Members to pay, on their admission, £1 1s. of Entry Money, besides such Annual Subscription as may be determined at the December Meeting of the Society for each session subsequent to that of their admission.

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VII.—No Motion, involving any change upon the Rules, to be put to the vote until it has been on the table for one month. The Motion to be decided by the majority of votes given by Members present—the Chairman having both an ordinary and a casting vote.

VIII.—The Secretary, three days before each meeting, to issue Circulars to the Resident Members, intimating the place of meeting, the title of the paper to be read, and the business to be disposed of.

IX.—The Secretary to keep a Minute Book of the proceedings of the Society.

X.—The Treasurer, or Secretary and Treasurer, to lay before the December Meeting a statement of the Income and Expenditure of the Society for the previous year.

XI.—In Elections, the Chairman to have both a deliberative and a casting vote.

XII.—The Council shall assist the Secretary in procuring Papers, and shall authorise the papers read, or selections, to be printed for the Members. The Council shall represent the Society in business arising when it is not in session, and shall decide as to the distribution of Copies of the Transactions beyond those to Ordinary Members.

XIII.—The Council shall, when a favourable opportunity occurs, arrange for an Address, at least once in the session, by some eminent literary or scientific lecturer, and, if the Address is to be public, it shall be so arranged as to involve as little expense as possible to the Society's funds.

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# ABERDEEN PHILOSOPHICAL SOCIETY.

## OFFICE-BEARERS, 1900.

**President.**

W. H. WILLIAMSON, M.D., D.D.S., L.D.S.

**Vice-Presidents.**

ALEX. BAIN, M.A., LL.D.
ALEX. FORBES, Merchant.
JAMES MOIR, M.A., LL.D.
JOSEPH OGILVIE, M.A., LL.D., Rector, Church of Scotland Training College.
Rev. GEORGE PIRIE, M.A., LL.D., Professor of Mathematics.
ALEX. WALKER, LL.D., F.S.A. Scot.
JOHN DOVE WILSON, LL.D., Professor of Law.

**Committee.**

WM. C. GOOD, Manufacturer.
ALEXANDER MACKIE, M.A., Principal, Albyn Place School.
GEORGE A. MACONACHIE, M.D., M.R.C.P.L., Brigade-Surgeon, Lieut.-Col., I.M.S.
THOMAS MILNE, M.A., M.D.
Rev. JAMES SUTHERLAND, M.A., D.D.

**Secretary.**

W. KENDALL BURNETT, M.A., Advocate, 11 Belmont Street, Aberdeen.

**Treasurer.**

WILLIAM MILNE, C.A., 147 Union Street, Aberdeen.

| Date of Admission. Ordinary or Corresponding Member. | Honorary Member. | **Honorary Members.** |
|---|---|---|
| 1842 | 1884 | Alex. Bain, M.A., LL.D., Emeritus Professor of Logic, and late Lord Rector, University. |
| 1843 | 1846 | J. P. Walker, M.D., late of Aberdeen. |
| 1844 | 1884 | Rev. Alex. Mitchell, M.A., D.D., Dunfermline. |
| 1853 | 1884 | Immanuel Schmidt, Ph.D., Berlin. |



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| Date of Admission. Ordinary or Corresponding Member. | Honorary Member. | **Honorary Members.**—*(Continued).* |
|---|---|---|
| 1868 | 1879 | Sir David Gill, C.B., LL.D., F.R.S., Astronomer Royal, Cape of Good Hope. |
| | 1870 | The Earl of Crawford and Balcarres, LL.D., F.R.S. |
| 1873 | 1884 | Rev. A. M. Fairbairn, LL.D., Principal of Mansfield College, Oxford. |
| | 1878 | The Hon. Sir Arthur H. Gordon, K.C.M.G. |
| 1878 | 1886 | William Stirling, M.D., F.R.S.E., Professor of Physiology, Owens College, Manchester. |
| 1882 | 1886 | William J. Simpson, M.D., late Medical Officer of Health, Calcutta. |
| | 1889 | Ralph Copeland, Ph.D., Astronomer Royal for Scotland, Professor of Practical Astronomy in Edinburgh University. |
| | 1892 | The Most Noble the Marquis of Huntly, LL.D. |
| | 1892 | The Right Hon. James Bryce, D.C.L., M.P. |
| 1888 | 1894 | Rev. Alex. Stewart, M.A., D.D., Principal and Primarius Professor of Divinity, College of St. Mary's, St. Andrews University. |
| | 1895 | John G. M'Kendrick, M.D., C.M., LL.D., F.R.S., F.R.S.E., F.R.C.P.E., Professor of Institutes of Medicine in Glasgow University. |

**Ordinary Members.**

1861—Alex. M'Farlane, late H.M. Customs.
1862—James Clyne, Engineering Factor.
1867—Alex. Ogston, M.D., Professor of Surgery, University.
1867—William Milne, C.A.
1868—Angus Fraser, M.A., M.D.
1873—Harvey Hall, Advocate, C.A.
1874—John Dove Wilson, LL.D., Advocate, Professor of Law, University.
1874—Alex. Smith, Manager, Gas Works.
1874—Thomas A. W. A. Youngson, M.A., Advocate.
1875—James Paterson, Merchant.
1875—J. P. Cumine, M.A., Advocate.
1875—Archibald M. M'Donald, M.A., Advocate.
1876—James Duguid, M.A., Advocate.
1876—Farquharson T. Garden, Advocate.
1877—Alexander Walker, LL.D., F.S.A. Scot., Wine Merchant, President, Mechanics' Institution.
1877—John Morgan, Builder.
1877—William Boulton, C.E., late Town Surveyor.
1877—William Stephenson, M.D., F.R.C.S.E., Professor of Midwifery, University.
1879—Thomas Jamieson, F.I.C., F.C.S., Fordyce Lecturer, University.

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**Ordinary Members**—*(Continued.)*

Date of Admission.

1879—Alexander Copland, Merchant.
1879—David McHardy, Manufacturer.
1879—Arthur Clyne, Architect.
1880—David W. Abernethy, Engineer.
1881—Rev. R. Lippe, LL.D., Chaplain, Royal Infirmary and Lunatic Asylum.
1881—Alex. Forbes, Merchant, ex-President, Aberdeen Chamber of Commerce.
1881—Joseph Ogilvie, M.A., LL.D., Rector, Church of Scotland Training College.
1881—Rev. George Pirie, M.A., LL.D., Professor of Mathematics, University.
1881—A. Marshall Mackenzie, A.R.S.A., Architect.
1882—Sir David Stewart, M.A., LL.D., Manufacturer, ex-Lord Provost.
1882—James Forbes, Merchant.
1882—James Moir, M.A., LL.D.
1882—James P. Kay, Chemist.
1883—William H. Williamson, M.D., D.D.S., L.D.S., Dental Surgeon,
1883—G. Gordon Jenkins, C.E.
1883—Alex. Adam, C.E.
1883—John Seivwright, Merchant.
1883—Robert J. Garden, M.A., M.D., C.M.
1883—John Parker, M.A., Advocate.
1883—John William Crombie, M.A., Manufacturer, M.P.
1883—Theodore Crombie, Manufacturer.
1883—John C. O. Will, M.D., F.R.S.E.
1884—Ranald Macdonald, Factor for the Cluny Estates.
1884—Alex. Mackie, M.A., Principal, Albyn Place Ladies' School.
1884—Wm. Clements Good, Manufacturer.
1884—James Minty, late Inspector of Cleansing.
1884—Rev. Henry W. Wright, Ferryhill Parish Church.
1884—John D. Anderson, M.A., Head Master, Ferryhill Public School.
1884—James Davidson, Manager, Scottish Employers' Liability Co.
1884—P. J. Anderson, M.A., LL.B., Librarian to the University.
1884—Henry Gray, Merchant.
1884—Alex. Forbes, Head Master, Marywell Street Public School.
1884—Alex. W. Robertson, M.A., Public Librarian.
1884—D. Mackie, M.A., M.D., Brigade Surgeon (A.M.D.).
1884—James Kinghorn, Merchant.
1885—P. M. Cran, C.A., City Chamberlain.
1885—Rev. James Smith, M.A., B.D., St George's-in-the-West.
1885—Wm. Cadenhead, Merchant.
1885—Jas. Sim, F.C.S., Chemist.
1885—John Kirby, Teacher of Music.
1885—John Bulloch, Cashier.

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**Ordinary Members**—*(Continued).*

**Date of Admission.**

1885—John Fyfe, Granite Merchant.
1885—William Mitchell, late Secretary, Union Bank of Scotland, Ltd.
1885—James D. Wyness, M.D., C.M.
1886—Thomas Kyd, Manager, Northern Assurance Company, Ex-President, Chamber of Commerce.
1886—George M. Edmond, M.A., M.D., C.M.
1886—James Murray of North Inveramsay, Bookseller.
1886—Hugh Imlay, Manufacturer.
1886—Robert Beveridge, Jun., Manufacturer.
1887—Francis Laing, Actuary, Northern Assurance Co., London *(Corresponding).*
1887—Sir William Henderson, LL.D., Shipowner, ex-Lord Provost.
1887—David Rennet, LL.D., Teacher of Mathematics.
1887—James Asher, M.A., Merchant.
1887—James Macbeth, Musicseller.
1887—Robert Fergusson, retired Granite Merchant.
1887—Wm. Reid, M.D., Medical Superintendent, Royal Lunatic Asylum.
1887—George Cruden, M.A., Advocate.
1888—George Mair, M.D., Fleet Surgeon, R.N.
1888—Alex. M. Munro, City Chamberlain's Office.
1888—Kenneth Cameron, C.S.I. Gr. Brit., Sanitary Inspector.
1888—J. W. Duncan, *Dundee Advertiser* and *People's Journal.*
1888—David Manson, late Collector of Inland Revenue.
1888—John Poynter Miller, M.A., B.Sc., Manufacturing Chemist.
1888—Alfred Gilchrist, M.A., Ph.D.
1889—George K. Fleming, Merchant.
1889—John Lyall Grant, Merchant, ex-President, Aberdeen Chamber of Commerce.
1889—R. Whyte Mackay, Warehouseman.
1890—R. Gordon Nicol, C.E., Harbour Engineer.
1890—Thomas Hector, Clerk, Aberdeen School Board.
1890—James T. Jamieson, late of Assam.
1890—George J. Scott, Bayview House.
1890—Donaldson Rose Thom, M.A., Advocate.
1890—Robert W. Reid, M.D., F.R.C.S. (Eng.), Professor of Anatomy, University.
1890—Robert Anderson, Sub-Editor, *Free Press.*
1891—A. Christen, Professor of Languages.
1891—James Stephen, M.A., late Instructor (R.N.).
1891—Alexander Lyon, Jun., Merchant.
1891—William Watt, F.S.S., Editor, *Free Press.*
1891—Lord Provost Fleming, Merchant.
1891—George Carmichael, Agent, North of Scotland Bank, Ltd., West-End Branch.
1891—John Thomson, Printer, University Press.

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**Ordinary Members**—*(Continued).*

Date of Admission.

1891—Thomas Cochrane, Manager, Town and County Bank, Ltd.
1891—Jas. Spence, Agent, National Bank of Scotland, Limited.
1891—James Walker, Merchant, Dean of Guild.
1891—Alex. R. Wilson, Merchant.
1892—George F. Shirras, Manufacturer.
1892—Charles McHardy, Merchant.
1892—Alex. Ledingham, Solicitor, C.A.
1892—John Leith, J.P., Merchant.
1892—Andrew Davidson, M.A., Advocate, C.A.
1892—John Gordon, M.D., C.M.
1893—David M. M. Milligan, M.A., Advocate.
1893—James Barron, C.E.
1893—James C. Glegg, Merchant.
1893—Thomas Walker, Manufacturer.
1894—John S. Stuart, Accountant and Treasurer, G. N. of S. Rly.
1894—William Jackson, Engineer.
1894—Rev. Martin Lewis, B.A., Queen's Cross Free Church.
1894—Rev. W. P. Paterson, M.A., D.D., Professor of Systematic Theology, University.
1894—Thomas R. Gillies, Advocate.
1894—William Murison, M.A., English Master, Grammar School.
1894—Walter A. Reid, C.A., F.F.A.
1894—W. Stewart Thomson, M.A., F.S.A., F.R.G.S., Principal, Aberdeen Civil Service College.
1894—Rev. James Sutherland, M.A., D.D. (late Free Church, Turriff).
1895—Herbert J. C. Grierson, M.A., Chalmers Professor of English Literature, University.
1895—Henry Alexander, Editor, *Free Press.*
1895—Hugh Macdonald, Solicitor.
1895—Thomas Lillie, Agent, Royal Bank of Scotland.
1895—A. T. Gordon Beveridge, M.A., M.B., C.M.
1895—Patrick Cooper, M.A., Advocate.
1895—John Buckley Allan, Advocate.
1895—Alex. Spence Macdonald, Merchant.
1895—Alex. Neil Macdonald, Solicitor.
1895—George Watt, M.D.
1895—William Thomson, J.P.
1895—Rev. W. L. Davidson, M.A., LL.D., Professor of Logic, University.
1895—James Hay, Little Ythsie.
1896—James E. Crombie, M.A., Manufacturer.
1896—J. Scott Riddell, M.A., M.B., C.M.
1896—George M. Thomson, Merchant.
1896—Rev. W. Borland, B.D., Rosemount Parish Church.
1896—Charles M. Brown, Clerk and Treasurer, Royal Infirmary and Lunatic Asylum.
1896—Wm. Kendall Burnett, M.A., Advocate, Secretary, Aberdeen Philosophical Society.

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**Ordinary Members**—*(Continued).*

Date of Admission.

1896—Rev. David Beatt, D.D., U.P. Church, Belmont Street.
1896—Thomas Milne, M.A., M.D.
1896—Lachlan Mackinnon, Yost., M.A., Advocate.
1896—William H. Shepherd, Merchant.
1896—Alex. Blacklaw, Solicitor.
1896—James A. Ross, F.S.I.A., Harbour Treasurer.
1896—George J. Shepherd, Merchant, President, Aberdeen Chamber of Commerce.
1897—Robert Mitchell, Logierieve House, Ellon.
1897—James Ducat, Manager, Aberdeen Jute Company, Limited.
1897—William Robbie, Writer.
1897—James Smith, Merchant (Pratt & Keith).
1897—Daniel Wright, M.A., M.D., Surgeon-Major, I.M.S.
1897—Thomas Fotheringham, Clerk and Treasurer, Robert Gordon's College.
1897—Thomas Jaffrey, Actuary, Aberdeen Savings Bank.
1897—Fred. Wright, Granite Merchant.
1897—Robert G. Wilson, Architect.
1897—George A. Maconachie, M.D., Brigade Surgeon, Lt.-Col., I.M.S.
1897—George Bisset, City Treasurer.
1897—Thomas Garland, Farmer.
1897—Kenneth M. Simpson, Solicitor.
1897—James Davidson, M.A., M.B., Brigade Surgeon, Lt.-Col., I.M.S.
1897—James R. Roddick, Agent, British Linen Company Bank.
1897—William Johnston, M.A.
1897—William Smith, Printer and Publisher.
1898—W. Y. M'Donald, Joint-Cashier, Union Bank of Scotland.
1898—Brigade-Surgeon Robert Gray.
1898—John Croll, Solicitor.
1898—William Christie Crowe, M.B., C.M.
1898—Charles M'Leod, Mathematical Master, Grammar School.
1898—David W. Finlay, M.D., F.R.G.P., Professor of Practice of Medicine, University.
1898—Robert Milroy, C.A.
1898—C. S. Terry, M.A., Lecturer on History, University.
1899—Charles F. Ludwig, Commission Merchant.
1899—James Turreff, Teller, North of Scotland Bank.
1899—Dr. J. Lewis M'Intyre, Lecturer on Comparative Psychology, University.
1899—John Robb, M.D., Surgeon-Major, I.M.S.
1900—Andrew Neilson, Wood Merchant.
1900—Chas. M'Gregor, Lecturer, C. of S. Training College.
1900—George Paterson, 8 Albyn Terrace.

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